

SEQUENCE LISTING

<110> Ausubel, Fredrick M.
Garsin, Danielle
Mylonakis, Eleftherios
Calderwood, Stephen B.
Sifri, Costi

<120> Enterococcal Virulence Factors

<130> 00786/408002

<150> PCT/US02/22979

<151> 2002-07-18

<150> 60/306,212

<151> 2001-07-18

<160> 47

<170> FastSEQ for Windows Version 4.0

<210> 1

<211> 2267

<212> DNA

<213> Enterococcus faecalis

<400> 1

```

gaaattgacc gtaaagtcaa tattttacaac attttaagcc tgaatgcgct aggtacgcta 60
tacgaactgg aaaaagatat gagaaaagcg caagtgtatt acgaaaaatc attacaagaa 120
ttggaacaat ttaaattaga atgttccttg gagcgttgta gaattttatta taattctgct 180
aaattctact cggaaatgaa agactaccaa aaaagtgtca ttttaagcga aaaagggatt 240
cagatttgct gtgacaaaca ctccatttat ttgctagatt atcttttata tgaaaaagcc 300
tttaacaaac aaatgctcgg ggaagacaca gccgatgact atcgccaagc ctattatattt 360
acacaatttt ttggcaatac ggaagtccct caatatattg agaaagatat gaaagctttt 420
aatatttcct attaatttaa tcaaaaagcc gataaaagct gaaaactcag tttttaccgg 480
ctttttgaaa aatataggca agttgctttt aaaaatcagc agtcacgggt acgataagca 540
agacgaagta tttaggagga tttaaaaatg aaaagagtaa tatggtttag acgtgattta 600
cgattacagg ataataaagc attagcacac gcgttacaaa attctgcagc tgatgaattg 660
attttattat tccaaatgaa tcctcaacaa ttatttcaag aaagtgtctaa tcataacgct 720
ttttttgcaa gcttagcctc gttcaaagaa cgaatcgatc aagaggcaca ttacaaatc 780
atggctggcg aaccattaga tttattttca cgtttgaaac gcaaattacc cgattggcag 840
gccatttatt ttaatgaaga tacttgtggc tttggggcaa agcggggacca gcaagctatg 900
cgcttttttg aagaaaataa tattcagctt ttctcttttc aagatgccta tttgcatggc 960
tctgaagaaa ttaagaagaa cgatggcagc aagtaccaag tgtttacgcc ctattacaat 1020
aaatggaaag aggcgcctaa agaaacaccg attcctgttt cctatacagc tgaaaaaatt 1080
tttagtgcgt gtctttttcc agaagaggaa gcagcttatc gtgaacagat tgcgaggatt 1140
cctttaacac actatagtgt cggcgaagaa acagccagaa ggcgcttaaa tacttttatt 1200
gatcaaaaac ttcaatccta tgaaaataag cgtgattttc cttatcagga tcaaacgagt 1260
catctgtcta cttttttaag aacgggagaa ctttcgattc gcaccatttg gcaagagctt 1320
gcatctgtgc cttctagctt aagtaaagaa accttcaaaa aagaattagc ttggcgcgac 1380
ttttacaata tgatctatag tgcgtttcca caacaaaaag aggaagctat tcaagaaaaa 1440
tttcgttata ttcaatggac aaatgacca gaaatgtttg tcaagtggca aaaaggggag 1500
acggggtacc ctataattga tgccgcaatg cgacaactga atcaaactgg ttggatgcac 1560
aatcgcttaa gaattattac tgcctctttt ttagttaaaa atttacacat cgattggcgt 1620
tggggtgaaa aatactttca aaaaatgttg attgactatg atgctgccaa taatatcggt 1680
ggctggcaat gggctgcttc aacaggaacg gacgctgtcc cttatttttcg gatttttaat 1740

```

```

ccaattatcc agtcaaaaaa atttgataat gacggccagt tcatcaaaaa atatgttcca 1800
gaacttaagc aagtgccaca aaagtatatt catcaaccaa atctaataa cgaagcctta 1860
caaacgcaat atcatgtaca tttaggagaa aattatccaa aaccattgt cgattatgca 1920
tcaagtaaaa aacaaacatt gtttctatat gaagcgagca aagaaattca tcaagaaatg 1980
aacaatccaa ggtttcaata aacagtaaac ccaactagct tagcaaacia cttgtaagggt 2040
tagttgggca aattaattag tcgaaagaga agtgcaattt atcgggctaaa gttttttatt 2100
ctattctagt taacataata tacattatac aaagtagagt aaaaagcatt gaaaagcaaa 2160
caaaaccagt ctttagttta tctagactgg tttgtcacg tacgttatat aaattatgct 2220
tgttgcttga tggcttgtgc gacacgtgct ccatattctg gatttac 2267

```

<210> 2

<211> 1434

<212> DNA

<213> Enterococcus faecalis

<400> 2

```

atgaaaagag taatatgggt tagacgtgat ttacgattac aggataataa agcattagca 60
cacgcgttac aaaattctgc agctgatgaa ttgattttat tattccaaat gaatcctcaa 120
caatttatcc aagaaagtgc taatcataac gctttttttg caagcttagc ctggttcaaa 180
gaacgaatcg atcaagaggc acatttaca atcatggtcg gcgaaccatt agattttatt 240
tcacgtttga aacgcaaatt acccgattgg caggccattt attttaatga agatacttgt 300
ggctttgggg caaagcggga ccagcaagct atgcgctttt ttgaagaaaa taatattcag 360
tctttctctt ttcaagatgc ctatttgcat ggctctgaag aaattaagaa gaacgatggc 420
agcaagtacc aagtgtttac gccctattac aataaatgga aagaggcgcc taaagaaaca 480
ccgattcctg tttcctatac agctgaaaaa attttttagtg cgtgtctttt tccagaagag 540
gaagcagctt atcgtgaaca gattgcgagg attcctttta cacactatag tgcggcgaa 600
gaaacagcca gaaggcgctt aaatactttt attgatcaaa aacttcaatc ctatgaaaat 660
aagcgtgatt ttccttatca ggatcaaacg agtcatctgt ctactttttt aagaacggga 720
gaactttcga ttgcacccat ttggcaagag cttgcatctg tgccttctag cttaagtaaa 780
gaaaccttca aaaaagaatt agcttggcgc gacttttaca atatgatcta tagtgcgttt 840
ccacaacaaa aagaggaagc tattcaagaa aaatttcggt atattcaatg gacaaatgac 900
ccagaaatgt ttgtcaagt gcaaaaaggg gagacgggtt accctataat tgatgccgca 960
atgcgacaac tgaatcaaac tggttggatg cacaatcgct taagaatgat tactgcctct 1020
tttttagtta aaaatttaca catcgattgg cgttgggggt aaaaatactt tcaaaaaatg 1080
ttgattgact atgatgctgc caataatata ggtggctggc aatgggctgc ttcaacagga 1140
acggacgctg tcccttattt tcggattttt aatccaatta tccagtcaaa aaaatttgat 1200
aatgacggcc agttcatcaa aaaatatgtt ccagaactta agcaagtgcc acaaaagtat 1260
attcatcaac caaatccaat gaacgaagcc ttacaaacgc aatatcatgt acatttagga 1320
gaaaattatc caaaacccat tgtcgattat gcatcaagta aaaaacaac attgtttcta 1380
tatgaagcga gcaaagaaat tcatcaagaa atgaacaatc caaggtttca ataa 1434

```

<210> 3

<211> 477

<212> PRT

<213> Enterococcus faecalis

<400> 3

```

Met Lys Arg Val Ile Trp Phe Arg Arg Asp Leu Arg Leu Gln Asp Asn
1           5           10           15
Lys Ala Leu Ala His Ala Leu Gln Asn Ser Ala Ala Asp Glu Leu Ile
20           25           30
Leu Leu Phe Gln Met Asn Pro Gln Gln Phe Ile Gln Glu Ser Ala Asn
35           40           45
His Asn Ala Phe Phe Ala Ser Leu Ala Ser Phe Lys Glu Arg Ile Asp
50           55           60
Gln Glu Ala His Leu Gln Ile Met Val Gly Glu Pro Leu Asp Leu Phe
65           70           75           80
Ser Arg Leu Lys Arg Lys Leu Pro Asp Trp Gln Ala Ile Tyr Phe Asn
85           90           95

```

Glu Asp Thr Cys Gly Phe Gly Ala Lys Arg Asp Gln Gln Ala Met Arg
 100 105 110
 Phe Phe Glu Glu Asn Asn Ile Gln Ser Phe Ser Phe Gln Asp Ala Tyr
 115 120 125
 Leu His Gly Ser Glu Glu Ile Lys Lys Asn Asp Gly Ser Lys Tyr Gln
 130 135 140
 Val Phe Thr Pro Tyr Tyr Asn Lys Trp Lys Glu Ala Pro Lys Glu Thr
 145 150 155 160
 Pro Ile Pro Val Ser Tyr Thr Ala Glu Lys Ile Phe Ser Ala Cys Leu
 165 170 175
 Phe Pro Glu Glu Glu Ala Ala Tyr Arg Glu Gln Ile Ala Arg Ile Pro
 180 185 190
 Leu Thr His Tyr Ser Val Gly Glu Thr Ala Arg Arg Arg Leu Asn
 195 200 205
 Thr Phe Ile Asp Gln Lys Leu Gln Ser Tyr Glu Asn Lys Arg Asp Phe
 210 215 220
 Pro Tyr Gln Asp Gln Thr Ser His Leu Ser Thr Phe Leu Arg Thr Gly
 225 230 235 240
 Glu Leu Ser Ile Arg Thr Ile Trp Gln Glu Leu Ala Ser Val Pro Ser
 245 250 255
 Ser Leu Ser Lys Glu Thr Phe Lys Lys Glu Leu Ala Trp Arg Asp Phe
 260 265 270
 Tyr Asn Met Ile Tyr Ser Ala Phe Pro Gln Gln Lys Glu Glu Ala Ile
 275 280 285
 Gln Glu Lys Phe Arg Tyr Ile Gln Trp Thr Asn Asp Pro Glu Met Phe
 290 295 300
 Val Lys Trp Gln Lys Gly Glu Thr Gly Tyr Pro Ile Ile Asp Ala Ala
 305 310 315 320
 Met Arg Gln Leu Asn Gln Thr Gly Trp Met His Asn Arg Leu Arg Met
 325 330 335
 Ile Thr Ala Ser Phe Leu Val Lys Asn Leu His Ile Asp Trp Arg Trp
 340 345 350
 Gly Glu Lys Tyr Phe Gln Lys Met Leu Ile Asp Tyr Asp Ala Ala Asn
 355 360 365
 Asn Ile Gly Gly Trp Gln Trp Ala Ala Ser Thr Gly Thr Asp Ala Val
 370 375 380
 Pro Tyr Phe Arg Ile Phe Asn Pro Ile Ile Gln Ser Lys Lys Phe Asp
 385 390 395 400
 Asn Asp Gly Gln Phe Ile Lys Lys Tyr Val Pro Glu Leu Lys Gln Val
 405 410 415
 Pro Gln Lys Tyr Ile His Gln Pro Asn Leu Met Asn Glu Ala Leu Gln
 420 425 430
 Thr Gln Tyr His Val His Leu Gly Glu Asn Tyr Pro Lys Pro Ile Val
 435 440 445
 Asp Tyr Ala Ser Ser Lys Lys Gln Thr Leu Phe Leu Tyr Glu Ala Ser
 450 455 460
 Lys Glu Ile His Gln Glu Met Asn Asn Pro Arg Phe Gln
 465 470 475

<210> 4
 <211> 2543
 <212> DNA
 <213> Enterococcus faecalis

<400> 4
 ccttttgaaa atttagatga aggatttgat gtctacgccca ctcaagcctt taatgcgccca 60
 gatggctcgtg cacttgccgt cagttggatt gggttgccag aaatcactta cccaagtgat 120
 gtggagggtt gggcaaatgg ctttaagtctg gttaaagaac tcacaattca caacgggaaa 180

ctattttcaat	atccagtttc	tgaacacagaa	atgcttcgctc	aatccgctac	tacttttatca	240
aatggctgcc	atttcttatac	tactgcttct	tttgaattag	aagtggatat	tcccaaaaat	300
gagattgctt	ttattcggct	tttagcgaac	gaaacgggtt	caaaaggact	tttaattaca	360
attgatacga	ttcatggtaa	aataaccctt	gatcgaacat	ttgctggcca	atcttttgct	420
gaaaagtatg	gcacaattcg	tgaactaaa	attaggaaaa	ataagtcagt	tcagttaact	480
atttttgttg	attgctctgt	tgcagaaatc	tatgtaaata	aaggtgaaaa	aacgatgact	540
ggctgcttct	ttccagataa	agcgcaacag	tatcttcac	tatccaagac	ggcaaaagct	600
tgtttttatg	agctggaaaa	tacgaataat	taggaatgat	ggtgaatttt	gatggtggtt	660
aaattaacgg	atgtagcaaa	gcttgctggg	gtgagccga	caacggtaag	ccgcgtgatt	720
aataattatg	gttatcttag	tcaaaaaaca	attgataaag	ttcatcaagc	gatggaagaa	780
ttaaattatc	aacctaattg	attagccaga	agcctccaag	gaaaaagtac	gcagctgatt	840
ggtttagtct	tcccttctgt	tagtcatcca	ttttttgggtg	aattaattga	aacactggaa	900
agaaagctct	ttgttcaagg	atataaagtg	attttatgtg	atagtgaaaa	agatccagaa	960
aaagagcgcg	cctattttacg	aatgctcgct	gcaataaag	tggacgggtg	aatcactggt	1020
agccataact	tagctatttaa	cgaatatgaa	aatgtttcac	tacctattgt	ttcctttgac	1080
cgtttcttgg	cacctggcat	tccaattgtc	tcttcgcaaa	actttcaagg	gggccaaaaa	1140
ggcactgaag	ccttatttgc	aagtggtgca	caaaagattg	caattattac	tggtgctaata	1200
aacacaggcg	cacctagcga	ttatcgattg	gctgggtata	aacaaacaat	ggaaaaatat	1260
ggcgcagaaa	aaacgattct	acaaattgat	aatgggacct	caacaacatt	aaaaaatcta	1320
gaaatcgaa	gtttgcttca	aaataaaact	gtagacggca	tcttttgtac	agatgatttg	1380
acagcaatta	cagttatgaa	tattgctcaa	aaattgaaga	tatccattcc	tgaagaatta	1440
aaagtaattg	gttatgatgg	gacaaaatta	atcaaaagaa	ttgccccaca	actatcaacc	1500
attgtgcagc	caatcgacga	gatgtgtgac	gttatgattg	acttactgct	tcgtagaatg	1560
aaggatcctg	atgttgact	tgaggaaaat	tatcctattc	cgattcagct	atcattgtct	1620
gaatcctggt	aaaaaagaca	ccttttcagg	tgtctttttt	tattcttaat	tcctcatttg	1680
cctattttcc	cttaattcca	aagcacagag	attaaataat	acaacaacat	gatccctaca	1740
aatacacccg	gcattagtaa	aacataccac	caatttttgg	cgctataggt	ttcattttta	1800
tttttttcgg	ttcgtttccc	ggcagcccat	ttccataaat	cgtaattatt	catctctctc	1860
accaccttta	atgggtttat	taacttaagc	ctaacacgga	atgagagaac	ttgaaaacaa	1920
aaggatcacc	cgcttatgca	atggatgatc	cttttttggg	cactattctt	ctgataaacc	1980
attattttta	ataactgatt	ggtaccaata	aaaactatct	tttttaatgc	gtcgtaaatc	2040
ttttaactca	tggtcttcac	gattaacgta	aataaaaaccg	tagcgttttt	tgaatccttg	2100
atgggaaact	aaaatatcca	tgaccgacca	agggcaatag	ccaaacaact	caacaccgtc	2160
agaaatagcc	gcatgacaag	cagcaatatg	atcatgcaaa	tacgcaattc	gataatcatc	2220
atgaattttt	ccgtcctctg	ttaggtgatc	tggtgtgcct	aagccgtttt	ctgtaatgat	2280
taacggcaaa	cggtattgac	gataataatc	atttaaaact	aaacgtagac	cagttggatc	2340
aatttgggca	ccatacttag	aggtttttta	atgttgattt	ttttcgattt	taaaataacc	2400
gtatagatca	aaatcaatgt	ccttttcttt	cgtacccaat	gggtgttgct	catctgtcgg	2460
taaatagcta	gcgactaacg	tccgataata	attaagagcg	ataaaatctg	gttttagcggc	2520
tttcaaaatt	gcttgatctt	ctg				2543

<210> 5

<211> 981

<212> DNA

<213> Enterococcus faecalis

<400> 5

atggtggtta	aattaacgga	tgtagcaaa	cttgctgggg	tgagcccgac	aacggtaagc	60
cgcgtagatta	ataattatgg	ttatcttagt	caaaaaacaa	tgataaaagt	tcatcaagcg	120
atggaagaat	taaattatca	acctaattgga	ttagccagaa	gcctccaagg	aaaaagtacg	180
cagctgattg	gttttagtctt	cccttctgtt	agtcattccat	tttttggtga	attaattgaa	240
acactggaaa	gaaagctctt	tgttcaagga	tataaagtga	ttttatgtga	tagtgaaaaa	300
gatccagaaa	aagagcgcg	ctattttacga	atgctcgctg	caaataaagt	ggacgggtga	360
atcactggta	gccataactt	agctattaac	gaatatgaaa	atgtttcact	acctattggt	420
tcctttgacc	gtttcttggc	acctggcatt	ccaattgtct	cttcgcaaaa	ctttcaaggg	480
ggccaaaaag	ccactgaagc	cttatttgca	agtggtgcac	aaaagattgc	aattattact	540
ggtgctaata	acacaggcgc	acctagcgat	tatcgattgg	ctggttataa	acaaacaatg	600
gaaaaatatg	gcgcagaaaa	aacgattcta	caaattgata	atgggacctc	aacaacatta	660
aaaaatctag	aaatcgaacg	tttgcttcaa	aataaaaactg	tagacggcat	cttttgtaca	720

gatgatttga cagcaattac agttatgaat attgctcaaa aattgaagat atccattcct 780
gaagaattaa aagtaattgg ttatgatggg acaaaattaa tcaaaagaat tgccccacaa 840
ctatcaacca ttgtgcagcc aatcgacgag atgtgtgacg ttatgattga cttactgctt 900
cgtagaatga aggatcctga tgttgcactt gaggaaaatt atcctattcc gattcagcta 960
tcattgtctg aatcctgtta a 981

<210> 6

<211> 326

<212> PRT

<213> Enterococcus faecalis

<400> 6

Met	Val	Val	Lys	Leu	Thr	Asp	Val	Ala	Lys	Leu	Ala	Gly	Val	Ser	Pro
1			5						10					15	
Thr	Thr	Val	Ser	Arg	Val	Ile	Asn	Asn	Tyr	Gly	Tyr	Leu	Ser	Gln	Lys
		20						25					30		
Thr	Ile	Asp	Lys	Val	His	Gln	Ala	Met	Glu	Glu	Leu	Asn	Tyr	Gln	Pro
		35					40					45			
Asn	Gly	Leu	Ala	Arg	Ser	Leu	Gln	Gly	Lys	Ser	Thr	Gln	Leu	Ile	Gly
	50					55					60				
Leu	Val	Phe	Pro	Ser	Val	Ser	His	Pro	Phe	Phe	Gly	Glu	Leu	Ile	Glu
65					70				75					80	
Thr	Leu	Glu	Arg	Lys	Leu	Phe	Val	Gln	Gly	Tyr	Lys	Val	Ile	Leu	Cys
			85					90					95		
Asp	Ser	Glu	Lys	Asp	Pro	Glu	Lys	Glu	Arg	Ala	Tyr	Leu	Arg	Met	Leu
			100					105					110		
Ala	Ala	Asn	Lys	Val	Asp	Gly	Val	Ile	Thr	Gly	Ser	His	Asn	Leu	Ala
		115					120					125			
Ile	Asn	Glu	Tyr	Glu	Asn	Val	Ser	Leu	Pro	Ile	Val	Ser	Phe	Asp	Arg
	130					135					140				
Phe	Leu	Ala	Pro	Gly	Ile	Pro	Ile	Val	Ser	Ser	Gln	Asn	Phe	Gln	Gly
145					150					155					160
Gly	Gln	Lys	Ala	Thr	Glu	Ala	Leu	Phe	Ala	Ser	Gly	Ala	Gln	Lys	Ile
			165					170					175		
Ala	Ile	Ile	Thr	Gly	Ala	Asn	Asn	Thr	Gly	Ala	Pro	Ser	Asp	Tyr	Arg
			180					185					190		
Leu	Ala	Gly	Tyr	Lys	Gln	Thr	Met	Glu	Lys	Tyr	Gly	Ala	Glu	Lys	Thr
		195				200						205			
Ile	Leu	Gln	Ile	Asp	Asn	Gly	Thr	Ser	Thr	Thr	Leu	Lys	Asn	Leu	Glu
	210					215					220				
Ile	Glu	Arg	Leu	Leu	Gln	Asn	Lys	Thr	Val	Asp	Gly	Ile	Phe	Cys	Thr
225					230					235					240
Asp	Asp	Leu	Thr	Ala	Ile	Thr	Val	Met	Asn	Ile	Ala	Gln	Lys	Leu	Lys
			245					250					255		
Ile	Ser	Ile	Pro	Glu	Glu	Leu	Lys	Val	Ile	Gly	Tyr	Asp	Gly	Thr	Lys
			260				265						270		
Leu	Ile	Lys	Arg	Ile	Ala	Pro	Gln	Leu	Ser	Thr	Ile	Val	Gln	Pro	Ile
		275					280					285			
Asp	Glu	Met	Cys	Asp	Val	Met	Ile	Asp	Leu	Leu	Leu	Arg	Arg	Met	Lys
	290					295					300				
Asp	Pro	Asp	Val	Ala	Leu	Glu	Glu	Asn	Tyr	Pro	Ile	Pro	Ile	Gln	Leu
305					310				315						320
Ser	Leu	Ser	Glu	Ser	Cys										
				325											

<210> 7

<211> 3064

<212> DNA

<213> Enterococcus faecalis

<400> 7

```
ctgcggcgtg caagcgattt tgtttatcac gctttgtcgg attgcagggg taccagccaa 60
atggcaatcg ggattatatg tttctacaca ttatacaggc tgtcatgatt gggcacaatt 120
ttatataaaa ccgtacggct ggctctttgc ggatttgtct tttggcggag gtgcttaccg 180
agacggggat agacagcggg ggaatcatta tttcggcaat ttagatgttt ttagaatggg 240
cgcaaatagt gagatccagg cagactttca gccggcaaaa atgcaattgc gtgcagaccc 300
aattgacaac cagcggggag aatttgagta cgaaaatgag ggcttgcctt acgcatgctt 360
gatagtttcg caagaacggc tttccatgga agagttgccg tttgattgac acataggggg 420
aatagtatga aaaagttaaa aatgatgggg attatgttat ttgttagtac ggtcttggtg 480
ggttgtggca caacagcaga acaaaaaata gacgagaaag caactgagaa aaccagtgtc 540
tcgaaaaaag ttttaaatat aatggagaac tcggaaatcg gttcaatgga ttctattttt 600
acacaagatg aagccagtat taacgcacag tccaatgtct ttgaagggtt atatcaattg 660
gatgaaaaag atcaactaat acctgctgct gctaaagaga tgccagaaat ttctgaggat 720
ggcaaacgat ataccattaa actaagagaa gatggcaagt ggtccaatgg tgatgctgta 780
acagccaatg atttcgtttt tgcttggcgt aaattagcga atcccaaaaa ccaagccaat 840
tactttttct tgttagaagg aacgattctg aacggaacag ctattacaaa agaggaaaaa 900
gcaccagagg aattgggtgt caaagcgctt gatgattata ctttggaggt tacttttaga 960
aagcctgtac catattttac gtcgttattg gcattttctc catttttccc acaaaacgaa 1020
gcattcgtga aagaaaaagg acaagcctat ggcaacttct gtgaaatgat tgtatctaatt 1080
ggtcgcgttt taatgaaaaa ttgggatcag tcagcgatgt cgtgggattt tgtgcgtaatt 1140
ccctactatt acgataaaga aaaagtaaaa tcagaaacga ttcattttga agttcttaaa 1200
gaaaccaata ccgtttataa tttgtacgaa tcaggtggaat tagatgtggc tgtcttaaca 1260
ggagattttg ctaaacaaaaa tcgagacaac ccagactatg aagcaatcga acggtcaaaa 1320
gtctattcct tacgtttaaa ccaaaaaaga aacgaaaaac catccatttt tgcaaatgag 1380
aatgtccgca aagcttttagc ttatgctttg gataaaaaaa gtttagtcga taatatttta 1440
gcagatggct caaaagaaat ttatgggtac attccagaaa aatttgtata taaccagaa 1500
acgaatgaag attttcgtca agaagcaggc gctcttgtca aaacagacgc caaaaaagcc 1560
aaagagtatt tagataaagc aaaagcagag ctaaacggag atgtagccat tgaacttctt 1620
tcaagagatg gtgatagtga ccgaaaagtt gctgaattta tccaaggcca gttacaagaa 1680
acgttgccctg gtctcactat taatgtcaaa acagttcctt taataatgc aattgaatta 1740
atgagaaaag gggattatga attgtctgtt ggcattgtgg gacccgatta tcaggatcca 1800
atgactttct tagaaagctc agttagtggg aaccgtatga actattctag cccaacgttt 1860
gatcaactaa ttgaagaagc aacaactaaa tacgcaaatg agcctgaaac tcgttggcaa 1920
acattaatta aagctgaaaa agtattgggt gaagaagatg ccgctttaat tcctttatac 1980
caagaggccc gtagtcagct tgtacgacca ggtgtcaaa gtattcagta tcataacttc 2040
ggtgcaacga gcacatataa gtatgcctat aaagaataaa ttagtgaaca aaagtacctt 2100
tagctgaagg tacttttttt ccgataagag cttctttttt gttaatagtc aacaattaat 2160
aaaaaaaata ttgaaaaagg ttgacaaaaa taatgatact cgttagaata agcactgtta 2220
acaaatgaat agcgttttca tgtgactaga taatactagg catggaagaa tttcgttaata 2280
caatgtgggtg tacaatgggt acgcaacatg tttaacggga ttgttctatg ctttttttgt 2340
tgttttctact gaaaatgtta gaattacttc tgcagaagag ggtcatttat gaaaattaaa 2400
aagggtgctaa atcaaaatgc tgtacttggt cttgacgaag gacaggagaa agtagctgtc 2460
ggtaaaggcg tcgggtttta taagactaaa aatgatgtct tatctcgaca attgggtggag 2520
cggatgtttg tgatggagcc agaaggactg aaaaaacttc aagtactgct atcacaaatt 2580
gaagacaaat acttttttag agtgaagaaa ttatccaaca tgctgaaacg gtattgggtg 2640
aaaagttgaa tgaacatatt aatattgggt tgagtgatca cattgctttt gcagctgaaa 2700
atattcaaaa taatattatt gttcggaaca agcttttaag tgaaattgag attttatata 2760
gtgaagaatt tgctattgct caatgggctg tagaatattt aacacaaacc ttagagattc 2820
catttagtta tgatgaagcg gggatatatt cgattcatat ccatagtgtc cgcagcgggc 2880
gtactgataa tagtaaaagt atccgtgaag ttacaatcgt ttctgaaatt attcatttaa 2940
tcgagcagga attggctatt gatattcatg atgataaaaa tagtctcagt tattcacgtt 3000
tggtgaatca tttacgtttg tttattcatc gcttccaaca aaatcaatac gctgttttag 3060
atga 3064
```

<210> 8

<211> 1653

<212> DNA

<213> Enterococcus faecalis

<400> 8

```

atgaaaaagt taaaaatgat ggggattatg ttatttgtaa gtacgggtctt ggtaggttgt 60
ggcacaacag cagaaacaaa aatagacgag aaagcaactg agaaaaccag tgtctcgaag 120
aaagttttaa atttaatgga gaactcggaa atcgggttcaa tggattctat ttttacacaa 180
gatgaagcca gtattaacgc acagtcgaat gtctttgaag ggttatatca attggatgaa 240
aaagatcaac taatacctgc tgctgctaaa gagatgccag aaatttctga ggatggcaaa 300
cgatatacca ttaaaactaag agaagatggc aagtgggtcca atgggtgatgc tgtaacagcc 360
aatgatttcg tttttgcttg gcgtaaatta gcgaatccca aaaaccaagc caattacttt 420
ttcttgtagg aaggaacgat tctgaacgga acagctatta caaaagagga aaaagcacca 480
gaggaattgg gtgtcaaagc gcttgatgat tatactttgg aggttacttt agaaaagcct 540
gtaccatatt ttacgtcgtt attggcattt tctccatttt tcccacaaaa cgaagcattc 600
gtgaaagaaa aaggacaagc ctatggcact tctagtgaag tgattgtatc taatgggtccg 660
tttttaatga aaaattggga tcagtcagcg atgtcgtggg attttggtgcg taatccctac 720
tattacgata aagaaaaagt aaaatcagaa acgattcatt ttgaagttct taaagaaacc 780
aataccggtt ataatttgta cgaatcaggt gaattagatg tggctgtctt aacaggagat 840
tttgctaaac aaaatcgaga caaccagac tatgaagcaa tcgaacggtc aaaagtctat 900
tccttacgtt taaacaaaaa aagaaacgaa aaaccatcca tttttgcaaa tgagaatgtc 960
cgcaaagctt tagcttatgc tttggataaa aaaagttagg tcgataatat tttagcagat 1020
ggctcaaaag aaatttatgg gtacattcca gaaaaatttg tatataaccc agaaacgaat 1080
gaagattttc gtcaagaagc aggcgtcttt gtcaaaacag acgcaaaaaa agccaaagag 1140
tatttagata aagcaaaagc agagctaaac ggagatgtag ccattgaact tctttcaaga 1200
catggtgata gtgaccgaaa agttgctgaa tttatccaag gccagttaca agaaacgttg 1260
cctggtctca ctattaatgt caaaacagtt cctttaaata atgcaattga attaatgaga 1320
aaaggggatt atgaattgtc tgttggcatg tggggaccgg attatcagga tccaatgact 1380
ttcttagaaa gctcagttag tggtaacggt atgaactatt ctagcccaac gtttgatcaa 1440
ctaattgaag aagcaacaac taaatacgca aatgagcctg aaactcgttg gcaaacatta 1500
attaaagctg aaaaagtatt ggtggaagaa gatgccgctt taattccttt ataccaagag 1560
gcccgtagtc agcttgtagc accaggtgtc aaaggtattc agtatcataa cttcgggtgca 1620
acgagcacat ataagtatgc ctataaagaa taa 1653

```

<210> 9

<211> 550

<212> PRT

<213> Enterococcus faecalis

<400> 9

```

Met Lys Lys Leu Lys Met Met Gly Ile Met Leu Phe Val Ser Thr Val
1      5      10      15
Leu Val Gly Cys Gly Thr Thr Ala Glu Thr Lys Ile Asp Glu Lys Ala
20      25      30
Thr Glu Lys Thr Ser Val Ser Lys Lys Val Leu Asn Leu Met Glu Asn
35      40      45
Ser Glu Ile Gly Ser Met Asp Ser Ile Phe Thr Gln Asp Glu Ala Ser
50      55      60
Ile Asn Ala Gln Ser Asn Val Phe Glu Gly Leu Tyr Gln Leu Asp Glu
65      70      75      80
Lys Asp Gln Leu Ile Pro Ala Ala Ala Lys Glu Met Pro Glu Ile Ser
85      90      95
Glu Asp Gly Lys Arg Tyr Thr Ile Lys Leu Arg Glu Asp Gly Lys Trp
100     105     110
Ser Asn Gly Asp Ala Val Thr Ala Asn Asp Phe Val Phe Ala Trp Arg
115     120     125
Lys Leu Ala Asn Pro Lys Asn Gln Ala Asn Tyr Phe Phe Leu Leu Glu
130     135     140
Gly Thr Ile Leu Asn Gly Thr Ala Ile Thr Lys Glu Glu Lys Ala Pro
145     150     155     160
Glu Glu Leu Gly Val Lys Ala Leu Asp Asp Tyr Thr Leu Glu Val Thr

```

				165					170					175			
Leu	Glu	Lys	Pro	Val	Pro	Tyr	Phe	Thr	Ser	Leu	Leu	Ala	Phe	Ser	Pro		
			180					185					190				
Phe	Phe	Pro	Gln	Asn	Glu	Ala	Phe	Val	Lys	Glu	Lys	Gly	Gln	Ala	Tyr		
		195					200					205					
Gly	Thr	Ser	Ser	Glu	Met	Ile	Val	Ser	Asn	Gly	Pro	Phe	Leu	Met	Lys		
	210					215				220							
Asn	Trp	Asp	Gln	Ser	Ala	Met	Ser	Trp	Asp	Phe	Val	Arg	Asn	Pro	Tyr		
225				230					235					240			
Tyr	Tyr	Asp	Lys	Glu	Lys	Val	Lys	Ser	Glu	Thr	Ile	His	Phe	Glu	Val		
			245					250						255			
Leu	Lys	Glu	Thr	Asn	Thr	Val	Tyr	Asn	Leu	Tyr	Glu	Ser	Gly	Glu	Leu		
		260						265					270				
Asp	Val	Ala	Val	Leu	Thr	Gly	Asp	Phe	Ala	Lys	Gln	Asn	Arg	Asp	Asn		
	275					280						285					
Pro	Asp	Tyr	Glu	Ala	Ile	Glu	Arg	Ser	Lys	Val	Tyr	Ser	Leu	Arg	Leu		
	290				295					300							
Asn	Gln	Lys	Arg	Asn	Glu	Lys	Pro	Ser	Ile	Phe	Ala	Asn	Glu	Asn	Val		
305				310					315					320			
Arg	Lys	Ala	Leu	Ala	Tyr	Ala	Leu	Asp	Lys	Lys	Ser	Leu	Val	Asp	Asn		
		325						330						335			
Ile	Leu	Ala	Asp	Gly	Ser	Lys	Glu	Ile	Tyr	Gly	Tyr	Ile	Pro	Glu	Lys		
		340					345					350					
Phe	Val	Tyr	Asn	Pro	Glu	Thr	Asn	Glu	Asp	Phe	Arg	Gln	Glu	Ala	Gly		
	355					360						365					
Ala	Leu	Val	Lys	Thr	Asp	Ala	Lys	Lys	Ala	Lys	Glu	Tyr	Leu	Asp	Lys		
	370				375						380						
Ala	Lys	Ala	Glu	Leu	Asn	Gly	Asp	Val	Ala	Ile	Glu	Leu	Leu	Ser	Arg		
385				390				395						400			
Asp	Gly	Asp	Ser	Asp	Arg	Lys	Val	Ala	Glu	Phe	Ile	Gln	Gly	Gln	Leu		
		405					410						415				
Gln	Glu	Thr	Leu	Pro	Gly	Leu	Thr	Ile	Asn	Val	Lys	Thr	Val	Pro	Leu		
		420					425						430				
Asn	Asn	Ala	Ile	Glu	Leu	Met	Arg	Lys	Gly	Asp	Tyr	Glu	Leu	Ser	Val		
	435					440						445					
Gly	Met	Trp	Gly	Pro	Asp	Tyr	Gln	Asp	Pro	Met	Thr	Phe	Leu	Glu	Ser		
	450				455					460							
Ser	Val	Ser	Gly	Asn	Arg	Met	Asn	Tyr	Ser	Ser	Pro	Thr	Phe	Asp	Gln		
465				470					475					480			
Leu	Ile	Glu	Glu	Ala	Thr	Thr	Lys	Tyr	Ala	Asn	Glu	Pro	Glu	Thr	Arg		
		485					490							495			
Trp	Gln	Thr	Leu	Ile	Lys	Ala	Glu	Lys	Val	Leu	Val	Glu	Glu	Asp	Ala		
		500					505						510				
Ala	Leu	Ile	Pro	Leu	Tyr	Gln	Glu	Ala	Arg	Ser	Gln	Leu	Val	Arg	Pro		
	515					520						525					
Gly	Val	Lys	Gly	Ile	Gln	Tyr	His	Asn	Phe	Gly	Ala	Thr	Ser	Thr	Tyr		
	530				535						540						
Lys	Tyr	Ala	Tyr	Lys	Glu												
545				550													

<210> 10
 <211> 3498
 <212> DNA
 <213> Enterococcus faecalis

<400> 10
 aatcaatgaa atttaataaa aaagcttagt tagttgcatt cattgttcaa atcggttaca 60
 ctaagtaagt aaaaaatat aatacaaggt tcgtcttcag gggcagggtg taattcccga 120

ccggtggtta	tagtccacga	ctcgttttta	acgattgaat	tggtgtaatt	ccaataccga	180
cagtatagtc	tggataaaga	agatagggct	tatttgagac	gctttttcat	cagataatcc	240
tactctat	ttccctgcag	aaaaataggg	tttttttgta	tgacaaagaa	gcgaatcaaa	300
aagttcgttg	aagatgggtc	cttaattgga	ggatttcaga	tgaacaacaa	ggtacaaaaa	360
atggtcagca	ttgcaatggt	ggccgcaatc	ggtacagtat	tacaatttgt	ggcatttccg	420
attatgccgg	cgtttagttt	tttgaaaatc	gatttttagtg	atattccgat	tctactcgga	480
atgttcttgt	acggaccggt	agcaggagta	attactgctt	ttgttcgttc	gttgctacac	540
ctgttcttaa	ccggactagc	accgcaaaat	atgggtggag	atttcgctag	cttttttagca	600
agtagtatct	tcaccttgcc	aattttttat	ttcttttggt	aaaagaaaaa	tatccgtaca	660
aatcggatag	tgggcttagt	aagtgggata	ttagccttga	caattttcat	gagtattgct	720
aattattttg	tcattacacc	catttactta	caattatatg	gtgtgaccac	acaacaattt	780
ttaggaacat	cttttagcaag	ctatgtggcg	attgggtattg	tgccattcaa	ccttattaaa	840
ggcctcttag	tcagtgggtg	ttttctagta	ctacatgcga	agttattgcc	atggctatca	900
aaaaaacaac	atactattca	gaaaaaaaca	ccgttaacaa	aataaatgat	aaaaaacctg	960
ctgttgaaca	atgtttgaca	gtgggttttt	aaaatttacg	cctaaaagaa	aagaggttgt	1020
cataatctgt	catcattctg	ttaaaaaata	ctaaaccatc	tgcaattgtaa	ttttaacttt	1080
cccttggtat	gatagaaatc	atcaaagaaa	gaggagtttt	cctgagtga	aaagtgtaaa	1140
aattgtcgtc	acgtgaatcg	tgatacggag	tccttttggt	aagaatgcgg	cgctccgcta	1200
atgaatgaat	caatgcatca	agaggaaaac	caagcacaac	catcaatgaa	taaagggaac	1260
gaatctactc	ctctcagatc	aaaaagaagc	tggtatctggg	cgtttctttt	tgtgttcata	1320
gttcttggtg	cggttagcta	ttttctcggt	acgcattatt	tttctaagga	acaacaaatt	1380
tcttattttt	ttgaagcgat	tgagaatggt	gatgcccaag	aattaagtaa	aaaaatgagg	1440
acgaacgagt	ctgaatttca	agtgaatccg	caaagcatta	agcctttaat	cacttattat	1500
caaaaaaatc	caactgagct	aaaaaaatta	gaaaaagcgc	tattaaagga	taaaaagtta	1560
catggtttta	ctattcgtga	aacaagtcaa	acagcatttt	tctttcaccg	ttatcaattc	1620
attttaacgc	ctgtttctgt	tcagttaacg	acgaatcagc	gcggtgtgac	gctggcaatg	1680
aacgggcggt	aagtgggcac	ttccgactca	accacttatc	aaaaggaatt	gggcccctta	1740
gcgccaggac	aatatacttt	tacagccaca	gtgaaagata	gcaccggcga	acctgttatc	1800
acagaagagt	accgtttatt	agaagaggaa	aatttatatt	ctagtattcc	tttagatttt	1860
aaacgaatga	attttggtgt	ggaaagcaat	ctgccagacg	cagatattta	tattaatgat	1920
cggaaagttg	gtacgetaac	gaatggaagc	aaaacgattg	gccctttggt	ctgggtccaa	1980
gggatgacga	ttcaacttaa	aaagacgatt	aatggagaag	aaattcaaac	atcaaaagaa	2040
acgattggtg	aaaatgattt	tgtcgaagcg	ctctccgata	atccaacgct	acaattgaat	2100
tttccgttag	ctagcgacta	tgatgcccgc	aaagcgctag	aaacctttta	tcaagcattt	2160
gccaaacaag	tgaaaagtca	tacggatagt	acagaatttg	ctaaaaaata	tctcgttggt	2220
ggggaaaata	atcctcaatt	tccttctttt	atagaagcac	ttgaacgatt	acgtgaaaag	2280
aaatcgaccg	atggttcacc	agattttgaa	gtgaccatta	atagcgtaca	attggatggt	2340
aaagaaaatt	accatgtcaa	ttattattta	gaagccaaaa	attctaaagc	aaaagaaaat	2400
ggtcttcgtt	atgaatggat	caatggccta	aatgatcaaa	ttcatttagt	caaagaaccg	2460
ttaaaagaag	gacaattaca	gtttgtttcg	atagatgaac	aaacacttgc	ttggctcgaa	2520
aagatactct	aagcaaaaat	gagtgcataa	ttatttagca	ctcatttttg	cttatttcta	2580
ttgcacgcgt	gggacatttg	cggtacgctt	ttaacacatt	ctcgcgttcg	ttttctggaa	2640
taaattggtg	tcgagcatgc	ggctcgtctt	taaaaaggac	aatcccatga	tcatacataat	2700
caaataatatt	aggcgcataa	acttgacaaa	gtccacaagc	aatacatttt	tcaggaacta	2760
aacgtgattg	cataaacagt	gacacatcct	atctaaaaga	ggtttactat	ggaagcaact	2820
tttatttttag	cgttattatc	tcattggatac	aaggtagctg	catcaacttt	gtatcatctt	2880
ttaaaaggca	aacggactag	ctctgttttg	atttatggtt	ttttatatga	ttgttttacgg	2940
ttcattggct	ggtggccaac	gatttccgaa	caagcctatt	ttcaatttct	tgaaaaactt	3000
tcgaaggcga	aacaaattca	gtatcacgaa	gagacaaatg	agattcaact	aacaaaagaa	3060
gggcaactat	ttttaaggga	gcaccatttt	tcgttgctgg	attatcctgc	aattgatctt	3120
tatcgttttg	gcagaagtga	tcgagaaagt	tggaactca	ttcaatttgc	cgtgcaagtg	3180
acttcatatt	tatcatttga	ggaaaaacag	tatattccac	ttttatcaac	accgattccg	3240
caactatatt	tgaaacgatg	gttacaacaa	gacaagaaag	agcagcgctg	tcaatcaatc	3300
aaagaagaac	tggtgcgagg	gtttgagtta	ctacctgaag	cagaaagcga	ctatttggtt	3360
gcgcaacttt	ctggttatca	gcaaactggc	aaagttcctc	agcaattaac	aagccataag	3420
acagctcttg	aacagcgttt	gtggcacacg	caagcggttc	atcatttact	gcagttgata	3480
atgtacggag	gaaattat					3498

<210> 11

<211> 1332
 <212> DNA
 <213> Enterococcus faecalis

<400> 11
 atgaatgaat caatgcatca agaggaaaac caagcacaac catcaatgaa taaaggggaac 60
 gaatctactc ctctcagatc aaaaagaagc tggatctggg cgtttctttt tgtgttcac 120
 gttcttggag cgggtagcta ttttctcggg acgcattatt tttctaagga acaacaaatt 180
 tcttatttta ttgaagcgat tgagaatggg gatgcccaag aattaagtaa aaaaatgagg 240
 acgaacgagt ctgaatttca agtgaatccg caaagcatta agcctttaat cacttattat 300
 caaaaaaatc caactgagct aaaaaaatta gaaaaagcgc tattaagga taaaaagtta 360
 catggtttta ctattcgtga aacaagtcaa acagcatttt tctttcaccg ttatcaattc 420
 attttaacgc ctgtttctgt tcagttaacg acgaatcagc gcggtgtgac gctggcaatg 480
 aacgggcggg aagtgggcac ttccgactca accacttatc aaaaggaatt gggcccctta 540
 gcgccaggac aatatacttt tacagccaca gtgaaagata gcaccggcga acctgttatc 600
 acagaagagt accgtttatt agaagaggaa aattatattt ctagtattcc tttagatttt 660
 aaacgaatga attttgttgt ggaaagcaat ctgccagacg cagatattta tattaatgat 720
 cggaaagttg gtacgctaac gaatggaagc aaaacgattg gccctttgtt ctggtccaaa 780
 gggatgacga ttcaacttaa aaagacgatt aatggagaag aaattcaaac atcaaaagaa 840
 acgattgggtg aaaatgattt tgtcgaagcg ctctccgata atccaacgct acaattgaat 900
 tttccgttag ctagcgacta tgatgccgcg aaagcgctag aaacctttta tcaagcattt 960
 gccaaacaag tgaaaagtca tacggatagt acagaatttg ctaaaaaata tctcgttggg 1020
 ggggaaaata atcctcaatt tccttctttt atagaagcac ttgaacgatt acgtgaaaag 1080
 aaatcgaccg atggttcacc agattttgaa gtgaccatta atacgctaca attggtatgg 1140
 aaagaaaatt accatgtcaa ttattattta gaagccaaaa attctaaagc aaaagaaaat 1200
 ggtcttcgtt atgaatggat caatggccta aatgatcaaa ttcatttagt caaagaaccg 1260
 ttaaaagaag gacaattaca gtttgtttcg atagatgaac aaacacttgc ttggctcgaa 1320
 aagatactct aa 1332

<210> 12
 <211> 443
 <212> PRT
 <213> Enterococcus faecalis

<400> 12
 Met Asn Glu Ser Met His Gln Glu Glu Asn Gln Ala Gln Pro Ser Met
 1 5 10 15
 Asn Lys Gly Asn Glu Ser Thr Pro Leu Arg Ser Lys Arg Ser Trp Ile
 20 25 30
 Trp Ala Phe Leu Phe Val Phe Ile Val Leu Gly Ala Gly Ser Tyr Phe
 35 40 45
 Leu Gly Thr His Tyr Phe Ser Lys Glu Gln Gln Ile Ser Tyr Phe Ile
 50 55 60
 Glu Ala Ile Glu Asn Gly Asp Ala Gln Glu Leu Ser Lys Lys Met Arg
 65 70 75 80
 Thr Asn Glu Ser Glu Phe Gln Val Asn Pro Gln Ser Ile Lys Pro Leu
 85 90 95
 Ile Thr Tyr Tyr Gln Lys Asn Pro Thr Glu Leu Lys Lys Leu Glu Lys
 100 105 110
 Ala Leu Leu Lys Asp Lys Lys Leu His Gly Leu Thr Ile Arg Glu Thr
 115 120 125
 Ser Gln Thr Ala Phe Phe Phe His Arg Tyr Gln Phe Ile Leu Thr Pro
 130 135 140
 Val Ser Val Gln Leu Thr Thr Asn Gln Arg Gly Val Thr Leu Ala Met
 145 150 155 160
 Asn Gly Arg Glu Val Gly Thr Ser Asp Ser Thr Thr Tyr Gln Lys Glu
 165 170 175
 Leu Gly Pro Leu Ala Pro Gly Gln Tyr Thr Phe Thr Ala Thr Val Lys
 180 185 190

Asp Ser Thr Gly Glu Pro Val Ile Thr Glu Glu Tyr Arg Leu Leu Glu
 195 200 205
 Glu Glu Asn Tyr Ile Ser Ser Ile Pro Leu Asp Phe Lys Arg Met Asn
 210 215 220
 Phe Val Val Glu Ser Asn Leu Pro Asp Ala Asp Ile Tyr Ile Asn Asp
 225 230 235 240
 Arg Lys Val Gly Thr Leu Thr Asn Gly Ser Lys Thr Ile Gly Pro Leu
 245 250 255
 Phe Trp Ser Lys Gly Met Thr Ile Gln Leu Lys Lys Thr Ile Asn Gly
 260 265 270
 Glu Glu Ile Gln Thr Ser Lys Glu Thr Ile Gly Glu Asn Asp Phe Val
 275 280 285
 Glu Ala Leu Ser Asp Asn Pro Thr Leu Gln Leu Asn Phe Pro Leu Ala
 290 295 300
 Ser Asp Tyr Asp Ala Arg Lys Ala Leu Glu Thr Phe Tyr Gln Ala Phe
 305 310 315 320
 Ala Lys Gln Val Lys Ser His Thr Asp Ser Thr Glu Phe Ala Lys Lys
 325 330 335
 Tyr Leu Val Gly Gly Glu Asn Asn Pro Gln Phe Pro Ser Phe Ile Glu
 340 345 350
 Ala Leu Glu Arg Leu Arg Glu Lys Ser Thr Asp Gly Ser Pro Asp
 355 360 365
 Phe Glu Val Thr Ile Asn Thr Leu Gln Leu Asp Gly Lys Glu Asn Tyr
 370 375 380
 His Val Asn Tyr Tyr Leu Glu Ala Lys Asn Ser Lys Ala Lys Glu Asn
 385 390 395 400
 Gly Leu Arg Tyr Glu Trp Ile Asn Gly Leu Asn Asp Gln Ile His Leu
 405 410 415
 Val Lys Glu Pro Leu Lys Glu Gly Gln Leu Gln Phe Val Ser Ile Asp
 420 425 430
 Glu Gln Thr Leu Ala Trp Leu Glu Lys Ile Leu
 435 440

<210> 13
 <211> 3400
 <212> DNA
 <213> Enterococcus faecalis

<400> 13
 aatttagata attgacgccc gccgcttcgg caactgtgac aatatcaaag ccagcaaaag 60
 ctttttcttt taattcggtc agaaagtcac tcattcctgg catgtttcta ctagcttttg 120
 ttactttggc taattgatct gcccacacag caggtaagtt tgtccaagtc aaatctttct 180
 taataaaatt aatcgcatct acacgaaaac cagcaattcc tttgtttaac caaaaacgaa 240
 tcatttgata gatttctttg cgtagttcag gattttccca atttaaattcc ggctgttttt 300
 tatgaaaggc atgaaagtag taggcattct cccaggttaa tttttcccaa acactaccac 360
 cgaagttaga ccgccaattt gtaggtgctt ctgcgtcttc ttttataata taaaagtctc 420
 gaaaacgact ttgaggattt tttaaaacat cttgaaacca agcatgttca tcagatgtat 480
 ggtttaccac caaatctaaa ataactttta tgtttcgttt ttttgcttct tcaatgagtt 540
 catcgaagtc tgccattgta ccaaaatcgc tagaaatacc ataatagtct gaaatatcat 600
 atccattgtc agccattggc gacgggtaca ttggactcag ccaaatacgc gtaattccta 660
 aattttctaa gtaatccagt ttttgaataa tgccttgtaa atcaccaatt ccgtcattat 720
 tactatccga aaagctacgt ggataaattt gataggccac ttctttttgc caccaatttc 780
 tgttcatctt ggttctcttc actcttaaac tagtcctgtt aattttttct gtaaccgttt 840
 ttacattttg tatgatactc gtttttgctg aatatgtcaa acgtttatca taaataaatg 900
 taaattataa tattcttttg atttaaattg atttatatat gttatacgtt tgactttttt 960
 ctgatttggt tatactatta gactaactac tattttctaa taaaggagac attacttatg 1020
 tcaagcatca tgaaccaatg gacggatgaa ttacgttatg cgccttattc ttcttggaca 1080
 tctgctcacc tcgaaaatct aacttctatt atcgcgcaat ctagtggcg ttttaagtat 1140

catattcaac	cacagacagg	actactaaat	gatcccaacg	gtttttcgta	tttcaataac	1200
cagtggcatt	tattttatca	agcgtttcct	ttcgggagtg	ttcacggact	aaaaagttgg	1260
gcccacttaa	cttcctccga	cttaattcac	tgggattatg	aaggaattgc	cctttatccc	1320
gactctgaat	atgattctca	tggcgtctat	tcaggctcag	ctttaacaat	agataaccaa	1380
ctatgtttat	tttatacagg	aaatgttcgt	gatcaaacct	ggcaacgatt	tgcatatcaa	1440
aatattgcat	ggctgaattc	tttaggtgcg	atcacaaagg	aatcaacacc	attcctacct	1500
attgacccca	attattcttc	ccattttcgt	gatccgatgg	tatttcctta	tcaagaagga	1560
cttgttttat	taattggtgc	tagtgattta	aatggacaag	gaaaaattgt	ggtctatttt	1620
tctaaagatc	gaaatgtaca	caattttcat	caacttggcg	aattgacgtt	caccaaccaa	1680
gaattaggct	acatggttga	atgccccaat	ttggtattta	ttgatggcca	gcctgtctta	1740
ttattttgcc	cacaaggtct	atctccatct	gtaaaaagtt	atcagaatat	ctatccgaat	1800
atgtacacat	tggccgaaac	gtttgatttg	gagaatcttt	ctttagttca	ggctgggcct	1860
tttgaaaatt	tagatgaagg	atttgatgtc	tacgccactc	aagcctttaa	tgcgccagat	1920
ggtcgtgcac	ttgcggtcag	ttggattggg	ttgccagaaa	tcacttacc	aagtgatgtg	1980
gagggttggg	caaattggctt	aagtctgggt	aaagaactca	caattcaca	cgggaaacta	2040
tttcaatatc	cagtttctga	aacagaaatg	cttcgtcaat	ccgctactac	tttatcaaat	2100
ggctgccatt	tcttatctac	tgcttctttt	gaattagaag	tggatattcc	caaaaatgag	2160
attgctttta	ttcggctttt	agcgaacgaa	acgggttcaa	aaggactttt	aattacaatt	2220
gatacgattc	atggtaaaaat	aacccttgat	cgaacatttg	ctggccaatc	ttttgctgaa	2280
aagtatggca	caattcgtga	aactaaaatt	aggaaaaata	agtcagttca	gttaactatt	2340
tttgttgatt	gctctgttgc	agaaatctat	gtaaataaag	gtgaaaaaac	gatgactggt	2400
cgcttctttc	cgataaaagc	gcaacagtat	cttcactctat	ccaagacggc	aaaagcttgt	2460
ttttatgagc	tggaaaaatac	gaataattag	gaatgatggg	gaattttgat	ggtggttaaa	2520
ttaacggatg	tagcaaagct	tgctgggggtg	agcccagaaa	cggtaagccg	cgtgattaat	2580
aattatggtt	atcttagtca	aaaaacaatt	gataaagtct	atcaagcgat	ggaagaatta	2640
aattatcaac	ctaattgatt	agccagaagc	ctccaaggaa	aaagtacgca	gctgattggt	2700
ttagtcttcc	cttctgttag	tcattccattt	tttggtgaat	taattgaaac	actggaaaga	2760
aagctctttg	ttcaaggata	taaagtgatt	ttatgtgata	gtgaaaaaga	tccagaaaaa	2820
gagcgcgcct	atttacgaat	gctcgtctga	aataaagtgg	acggtgtaat	cactggtagc	2880
cataacttag	ctattaacga	atatgaaaaa	gtttcactac	ctattgtttc	ctttgaccgt	2940
ttcttggcac	ctggcattcc	aattgtctct	tcgcaaaaact	ttcaaggggg	ccaaaagccc	3000
actgaagcct	tatttgcaag	tgggtgcacaa	aagattgcaa	ttattactgg	tgctaataac	3060
acaggcgcac	ctagcgatta	tcgattggct	ggttataaac	aaacaatgga	aaaatatggc	3120
gcagaaaaaa	cgattctaca	aattgataat	gggacctcaa	caacattaaa	aaatctagaa	3180
atcgaacggt	tgcttcaaaa	taaaactgta	gacggcatct	tttgtacaga	tgatttgaca	3240
gcaattacag	ttatgaatat	tgctcaaaaa	ttgaagatat	ccattcctga	agaattaaaa	3300
gtaattggtt	atgatgggac	aaaattaatc	aaaagaattg	ccccacaact	atcaaccatt	3360
gtgcagccaa	tcgacgagat	gtgtgacgtt	atgattgact			3400

<210> 14
 <211> 1473
 <212> DNA
 <213> Enterococcus faecalis

<400> 14	
atgtcaagca	tcataagca
acatctgctc	acctcgaaaa
tatcatattc	aaccacagac
aaccagtggc	atattatttt
tgggcccact	taacttcctc
cccactctg	aatatgattc
caactatggt	tattttatatac
caaaatattg	catggctgaa
cctattgacc	ccaattattc
ggacttggtt	tattaatgtg
ttttctaaag	atcgaattgt
caagaattag	gctacatggg
ttattatttt	gccacaaagg
aatatgtaca	cattggccga
atggacggat	gaattacgtt
attatcgcg	aatctagttg
acggtttttc	gtatttcaat
gtgttcacgg	actaaaaagt
atgaaggaa	tgccctttat
cagctttaac	aatagataac
cttggaacg	atttgcatat
aggaatcaac	accattccta
tggtatttcc	ttatcaagaa
aaggaaaaat	tggtgcttat
gcgaattgac	gttcaccaac
ccagcctgtc	ccagcctgtc
gttatcagaa	tatctatccg
tttcttttagt	tcaggctggg

```

ccttttgaaa atttagatga aggatttgat gtctacgccca ctcaagcctt taatgcgccca 900
gatggtcgtg cacttgcggt cagttggatt gggttgccag aaatcactta cccaagtgat 960
gtggagggtt gggcaaattg cttaagtctg gttaaagaac tcacaattca caacgggaaa 1020
ctatttcaat atccagtttc tgaaacagaa atgcttcgtc aatccgctac tactttatca 1080
aatggctgcc atttcttata tactgcttct tttgaattag aagtggatat tcccaaaaaat 1140
gagattgctt ttattcggtt tttagcgaac gaaacgggtt caaaaggact ttttaattaca 1200
attgatacga ttcattgtaa aataaccctt gatcgaacat ttgctggcca atcttttgc 1260
gaaaagtatg gcacaattcg tgaaactaaa attaggaaaa ataagtcagt tcagttaact 1320
atTTTTgttg attgctctgt tgcagaaatc tatgtaaata aaggtgaaaa aacgatgact 1380
ggtcgcttct ttccagataa agcgcaacag tatcttcatc tatccaagac ggcaaaagct 1440
tgTTTTtatg agctggaaaa tacgaataat tag 1473

```

<210> 15
 <211> 490
 <212> PRT
 <213> Enterococcus faecalis

```

<400> 15
Met Ser Ser Ile Met Asn Gln Trp Thr Asp Glu Leu Arg Tyr Ala Pro
1      5      10      15
Tyr Ser Ser Trp Thr Ser Ala His Leu Glu Asn Leu Thr Ser Ile Ile
20      25      30
Ala Gln Ser Ser Trp Arg Phe Lys Tyr His Ile Gln Pro Gln Thr Gly
35      40      45
Leu Leu Asn Asp Pro Asn Gly Phe Ser Tyr Phe Asn Asn Gln Trp His
50      55      60
Leu Phe Tyr Gln Ala Phe Pro Phe Gly Ser Val His Gly Leu Lys Ser
65      70      75      80
Trp Ala His Leu Thr Ser Ser Asp Leu Ile His Trp Asp Tyr Glu Gly
85      90      95
Ile Ala Leu Tyr Pro Asp Ser Glu Tyr Asp Ser His Gly Val Tyr Ser
100     105     110
Gly Ser Ala Leu Thr Ile Asp Asn Gln Leu Cys Leu Phe Tyr Thr Gly
115     120     125
Asn Val Arg Asp Gln Thr Trp Gln Arg Phe Ala Tyr Gln Asn Ile Ala
130     135     140
Trp Leu Asn Ser Leu Gly Ala Ile Thr Lys Glu Ser Thr Pro Phe Leu
145     150     155     160
Pro Ile Asp Pro Asn Tyr Ser Ser His Phe Arg Asp Pro Met Val Phe
165     170     175
Pro Tyr Gln Glu Gly Leu Val Leu Leu Ile Gly Ala Ser Asp Leu Asn
180     185     190
Gly Gln Gly Lys Ile Val Val Tyr Phe Ser Lys Asp Arg Asn Val His
195     200     205
Asn Phe His Gln Leu Gly Glu Leu Thr Phe Thr Asn Gln Glu Leu Gly
210     215     220
Tyr Met Val Glu Cys Pro Asn Leu Val Phe Ile Asp Gly Gln Pro Val
225     230     235     240
Leu Leu Phe Cys Pro Gln Gly Leu Ser Pro Ser Val Lys Ser Tyr Gln
245     250     255
Asn Ile Tyr Pro Asn Met Tyr Thr Leu Ala Glu Thr Phe Asp Leu Glu
260     265     270
Asn Leu Ser Leu Val Gln Ala Gly Pro Phe Glu Asn Leu Asp Glu Gly
275     280     285
Phe Asp Val Tyr Ala Thr Gln Ala Phe Asn Ala Pro Asp Gly Arg Ala
290     295     300
Leu Ala Val Ser Trp Ile Gly Leu Pro Glu Ile Thr Tyr Pro Ser Asp
305     310     315     320
Val Glu Gly Trp Ala Asn Gly Leu Ser Leu Val Lys Glu Leu Thr Ile

```


gggacttttct tatggatgat gcaagacaag aaaccgaacg aaagtgctag caaaaaatagc 1860
cagccatctt cttcattagt ccaatcatca tcaaaaagaga agaaaaaaga aagtacgtca 1920
aatcagtgag aaagctcaga accagcaagc agccaaccag ctgaaaatac aacaccttca 1980
agttcagatg ctgctgcaca gcaacaacag gaccaacaag cacaacaata gcaacagcaa 2040
caacaagagc agcaacaaca acaagaagct caaatcaac aacagcaac 2089

<210> 17

<211> 1347

<212> DNA

<213> Enterococcus faecalis

<400> 17

atgaatacat tggctgtttt gccaacaggg actggaaaat cattgtgtta tcaatttgtg 60
ggccagaagt tagagggact aacggtaatt gtttctccct tactttcgtt aatggaagat 120
cagatgcgtc aattacaaag acaaggaatt aaaggtgcgg ttgcctaaa cagtacgtta 180
cagtattcag aaaagcggtta tattttagcg aaaatgttcc aatacgatta tctgttttta 240
agcccagaaa tgcttttgca gcaagaagta cttagtgtgt tacaacgcca aaaaattgca 300
ttatttgtgg tggatgaagc ccattgtgtt tatcagtggt gcgtcgattt tcgccctgaa 360
tatagtaaat tagatctggt ccaaaaacag ctagactttc ctttgacctt ggcgttaact 420
gccacagcga caccggttgt acagcacgca attataaaac aattattttc tcatggcagc 480
tatcaagaag ttctttcttc agtgaatcga aaaaatattg gcttggtcgt gaaggaaacg 540
tcagaaaaag aagaagtgtt actagattac ttatctaaaa cggctggtta aatcattatc 600
tattgcgcca cgcgcaacaa aacagaacaa atcagtcaac ttattcaggc aaaaaccagt 660
tttaaggtag cctattatca tgggggcttg gaggctagt aacgtagtcg cttgcaagaa 720
caattttattg ataatcaaat cgatattctt tgtgcaacga atgcttttgg gatgggaatc 780
gacaaacctg atgttcgtgg agtgattcat tttgatttgc ctgatagctt agaaaattac 840
ctgcaagaaa tcgggcgagc tggacgtgat ggtcaaaaaa gttgggcgct attattgtat 900
aaaaaagggg atgaatttat tcatcggttt ttcttagaag agacaagagc gaatcgagcg 960
accttaaaat cgctgattga aggagaagaa caagcaggtt tgctagaaaa tgccaccgag 1020
ttacaacaaa aatgggtcca aggctattta gccaaaggatt attcttttga agagctagag 1080
catcgttttag aggagaaaga aaaagatcgc caagcacaat taagagggat gctgacgtat 1140
attgaaacca caacctgtcg aagaacgttg attcaaaact attttcaaga accgattgtc 1200
aaacaatcac cggaacttg ttgtgataat tgtgcgttat tctttgacat ttaccaagat 1260
tcaatagtaa aatcgaacaa gaccagcaat caaatgaag aaggttggcg ttctaaattt 1320
ctaaaattat ttaaagaacg tgattaa 1347

<210> 18

<211> 448

<212> PRT

<213> Enterococcus faecalis

<400> 18

Met Asn Thr Leu Ala Val Leu Pro Thr Gly Thr Gly Lys Ser Leu Cys
1 5 10 15
Tyr Gln Phe Val Gly Gln Lys Leu Glu Gly Leu Thr Val Ile Val Ser
20 25 30
Pro Leu Leu Ser Leu Met Glu Asp Gln Met Arg Gln Leu Gln Arg Gln
35 40 45
Gly Ile Lys Gly Ala Val Ala Leu Asn Ser Thr Leu Gln Tyr Ser Glu
50 55 60
Lys Arg Tyr Ile Leu Ala Lys Met Phe Gln Tyr Asp Tyr Leu Phe Leu
65 70 75 80
Ser Pro Glu Met Leu Leu Gln Gln Glu Val Leu Ser Val Leu Gln Arg
85 90 95
Gln Lys Ile Ala Leu Phe Val Val Asp Glu Ala His Cys Val Tyr Gln
100 105 110
Trp Gly Val Asp Phe Arg Pro Glu Tyr Ser Lys Leu Asp Leu Val Gln
115 120 125
Lys Gln Leu Asp Phe Pro Leu Thr Leu Ala Leu Thr Ala Thr

130	135	140
Pro Val Val Gln His Ala Ile Ile Lys Gln Leu Phe Ser His Gly Ser		
145	150	155
Tyr Gln Glu Val Leu Ser Ser Val Asn Arg Lys Asn Ile Gly Leu Phe		160
	165	170
Val Lys Glu Thr Ser Glu Lys Glu Glu Val Leu Leu Asp Tyr Leu Ser		175
	180	185
Lys Thr Ala Gly Lys Ile Ile Ile Tyr Cys Ala Thr Arg Asn Lys Thr		190
	195	200
Glu Gln Ile Ser Gln Leu Ile Gln Ala Lys Thr Ser Phe Lys Val Ala		205
	210	215
Tyr Tyr His Gly Gly Leu Glu Ala Ser Glu Arg Ser Arg Leu Gln Glu		220
225	230	235
Gln Phe Ile Asp Asn Gln Ile Asp Ile Leu Cys Ala Thr Asn Ala Phe		240
	245	250
Gly Met Gly Ile Asp Lys Pro Asp Val Arg Gly Val Ile His Phe Asp		255
	260	265
Leu Pro Asp Ser Leu Glu Asn Tyr Leu Gln Glu Ile Gly Arg Ala Gly		270
	275	280
Arg Asp Gly Gln Lys Ser Trp Ala Leu Leu Leu Tyr Lys Lys Gly Asp		285
	290	295
Glu Phe Ile His Arg Phe Phe Leu Glu Glu Thr Arg Ala Asn Arg Ala		300
305	310	315
Thr Leu Lys Ser Leu Ile Glu Gly Glu Glu Gln Ala Gly Leu Leu Glu		320
	325	330
Asn Ala Thr Glu Leu Gln Gln Lys Trp Val Gln Gly Tyr Leu Ala Lys		335
	340	345
Asp Tyr Ser Phe Glu Glu Leu Glu His Arg Leu Glu Glu Lys Glu Lys		350
	355	360
Asp Arg Gln Ala Gln Leu Arg Gly Met Leu Thr Tyr Ile Glu Thr Thr		365
	370	375
Thr Cys Arg Arg Thr Leu Ile Gln Thr Tyr Phe Gln Glu Pro Ile Val		380
385	390	395
Lys Gln Ser Pro Glu Thr Cys Cys Asp Asn Cys Ala Leu Phe Phe Asp		400
	405	410
Ile Tyr Gln Asp Ser Ile Val Lys Ser Asn Lys Thr Ser Asn Gln Asn		415
	420	425
Glu Glu Gly Trp Arg Ser Lys Phe Leu Lys Leu Phe Lys Glu Arg Asp		430
	435	440
		445

<210> 19
 <211> 2096
 <212> DNA
 <213> Enterococcus faecalis

<400> 19
 tacttttagct tctcaaaagc tccatacgag tcaaccttat ttaagtaccc agctcaagga 60
 gttggaacgt gaattagggtg cttcattaat tttaagagac aagaaacatt gtcggctttc 120
 tccagcaggc gaagtcgtcg ccaagcgaac agaaatgatt ttgcaactca ttaaggaagc 180
 gcaagaagag attaatgaat tagtgaccca aggatcgaca acgaccattc ggattggaac 240
 aaacttaatt gatatagata aagcatttgg agaagtcttg ttgttattta atcaatccta 300
 tccgtatgta agtattgatt ttaagtatta ttacgatctt gaaacagcct tggaaacaga 360
 tttaattgac attgggattg ggatattttt ggatacctcg attccattag agaaagaatt 420
 aatttataca gaaagctatc tcctttgtgt caataaaaat catcctttag cccatgccga 480
 tagcgtgacg attgacgaaa ttcgttcttt acccttttgc gcatattccg atcaagtata 540
 tgaaaaaaa gtgttcaaac gttgggaacg taaaatcaat tgggaaaatc ggcaaatcgt 600
 catcgaactt ccttctcttc atttagtctt agacatggtc caacgagaaa aagcctgtag 660
 catccttccc tatttactca ctgatgaact aaacagacgt aacttagttg gtattcctct 720


```

ggaagatagt ccagaacgag ccatctatctt agttcagaat aatcatcacg gacattgtga 780
agcacaccgt tatattattcg aacaattacg ttattttatc taggaataga aaaaggagga 840
attcccatgg aactattttcg ttacattat ttatttagagt tatgcaaagt gaaacaattt 900
actaaagcag ccgaaaattt agcaattttc caagctgcat taagtaagca aataaaaaatt 960
cttgaagcaa cgttaggcgc ggaacttttt aatcgccaag gccaaactac caccttaacg 1020
ccagctggat taatttttaga aaaatattgt tggcgcatca ccaatgagtt ggtctcaatt 1080
gaagaagagc taaaagaaat taatcattct tccaaccata tttatgtggc cacttatctc 1140
tgtgatttag aatataaatt gaatgactta ctaatgacaa cattaacgga tcgttcaccc 1200
aacttacaag tccacactat tattacagaa aatattcttc aatccttgga aacaatggat 1260
gcagattttg gtattttcctt tgctgactta ccattacctg aacatattgg taaaattgat 1320
ttattttacg caaattatca attcatttta agaaacgac atccagcttt ggcaaaagcc 1380
acgacggaag aaatttttaa agaactaaca atgtaccctt tcgtccggtt aaataccgaa 1440
ttttccgagc aaaacaaatt aaccaattgg ctagatacta cgttttctaa tttttctcca 1500
gagaaagtca ttcaagtggg tactctttca cttattactc acttggtgtc tcattccgat 1560
agtttgcgta ttgtccccga atacacaaat attcaacttt tagacaattc gatccataca 1620
ctaacttacc aagaactacc taaacgaaac atggcagttt attattttaa agaacgttac 1680
atgagtcgac aacttcaaca acttttggct gaatgccaaa aacaatttca atagtaaaaa 1740
ccaagactag agcttgctgg caagcgagtt ccagtcttgg tttttatttg tgttttcagg 1800
tagcggcttc tcttcctttg acaaactcta aagaagtgat agccatcact aacgaagtgc 1860
ctccttgact taaaaacgga agcgggaatac cttttaacgg caacagtcca atcaccgcac 1920
cgatattctc caccgtttga aagaccagcg aaaaaatgag ggcgacacag atgtacatac 1980
aaaaacgcga attgtccgcg aagccagcta ctaaaacttg ataaaacaag taaaaataga 2040
gaaaaacaac ggtggcactg cccacaaagc cccaggcttc cccgataaaa gtaaaa 2096

```

```

<210> 20
<211> 888
<212> DNA
<213> Enterococcus faecalis

```

```

<400> 20
atggaactat ttogttttaca ttatttttta gagttatgca aagtgaaaca atttactaaa 60
gcagccgaaa attttagcaat ttctcaagct gcattaagta agcaaataaa aattcttgaa 120
gcaacgttag gcgcggaact ttttaatcgc caaggccaaa ctaccacctt aacgccagct 180
ggattaattt tagaaaaata ttgttggcgc atcaccaatg agttggtctc aattgaagaa 240
gagctaaaag aaattaatca ttcttccaac catattttatg tggccactta tctctgtgat 300
ttagaatata aattgaatga cttactaatg acaacattaa cggatcggtt atccaactta 360
caagtccaca ctattattac agaaaatatt cttcaatcct tggaaacaat ggatgcagat 420
tttggtattt cctttgctga cttaccatta cctgaacata ttggtaaaaat tgatttattt 480
acagcaaatt atcaattcat ttttaagaac gatcatccag ctttggcaaa agccacgacg 540
gaagaaattt taaaagaact aacaatgtac cccttcgtcc gtttaaatac cgaattttcc 600
gagcaaaaca aattaaccaa ttggctagat actacgtttt ctaatttttc tccagagaaa 660
gtcattcaag tggatactct ttcaattatt actcatttgg tgtctcattc cgatagtttc 720
gctattgtcc cogaatacac aaatattcaa cttttagaca attcgatcca tacactaact 780
taccaagaac tacctaaacg aaacatggca gtttattatt taaaagaacg ttacatgagt 840
cgacaacttc aacaactttt ggctgaatgc caaaaacaat ttcaatag 888

```

```

<210> 21
<211> 294
<212> PRT
<213> Enterococcus faecalis

```

```

<400> 21
Met Glu Leu Phe Arg Leu His Tyr Phe Leu Glu Leu Cys Lys Val Lys
1 5 10 15
Gln Phe Thr Lys Ala Ala Glu Asn Leu Ala Ile Ser Gln Ala Ala Leu
20 25 30
Ser Lys Gln Ile Lys Ile Leu Glu Ala Thr Leu Gly Ala Glu Leu Phe
35 40 45
Asn Arg Gln Gly Gln Thr Thr Thr Leu Thr Pro Ala Gly Leu Ile Leu

```

50		55		60
Glu Lys Tyr Cys Trp	Arg Ile Thr Asn Glu Leu	Val Ser Ile Glu Glu		
65	70	75	80	
Glu Leu Lys Glu Ile	Asn His Ser Ser Asn His	Ile Tyr Val Ala Thr		
	85	90	95	
Tyr Leu Cys Asp Leu	Glu Tyr Lys Leu Asn Asp	Leu Leu Met Thr Thr		
	100	105	110	
Leu Thr Asp Arg Ser	Ser Asn Leu Gln Val His	Thr Ile Ile Thr Glu		
	115	120	125	
Asn Ile Leu Gln Ser	Leu Glu Thr Met Asp Ala	Asp Phe Gly Ile Ser		
	130	135	140	
Phe Ala Asp Leu Pro	Leu Pro Glu His Ile Gly	Lys Ile Asp Leu Phe		
145	150	155	160	
Thr Ala Asn Tyr Gln	Phe Ile Leu Arg Asn Asp	His Pro Ala Leu Ala		
	165	170	175	
Lys Ala Thr Thr Glu	Glu Ile Leu Lys Glu Leu	Thr Met Tyr Pro Phe		
	180	185	190	
Val Arg Leu Asn Thr	Glu Phe Ser Glu Gln Asn	Lys Leu Thr Asn Trp		
	195	200	205	
Leu Asp Thr Thr Phe	Ser Asn Phe Ser Pro Glu	Lys Val Ile Gln Val		
	210	215	220	
Asp Thr Leu Ser Leu	Ile Thr His Leu Val Ser	His Ser Asp Phe Ala		
225	230	235	240	
Ile Val Pro Glu Tyr	Thr Asn Ile Gln Leu Leu	Asp Asn Ser Ile His		
	245	250	255	
Thr Leu Thr Tyr Gln	Glu Leu Pro Lys Arg Asn	Met Ala Val Tyr Tyr		
	260	265	270	
Leu Lys Glu Arg Tyr	Met Ser Arg Gln Leu Gln	Gln Leu Leu Ala Glu		
	275	280	285	
Cys Gln Lys Gln Phe	Gln			
290				

<210> 22
 <211> 2340
 <212> DNA
 <213> Enterococcus faecalis

<400> 22
 acaaaaatta ccttcagaat atgatttagc taaagaatat aactgcagtc gcttgaccat 60
 ccgtaaagcg attgatgatt tgatccgcaa aaatatatttg gtaaaacgac atggtaaagg 120
 tagttatgtg atgtcgcaag cgaaaattca aagtggctgc gctggcttac aaggttttac 180
 tgaggcagcc aaagcttacg ggaaaaaaag ccagacagaa gtcatttcct ttgaagaagt 240
 agtacatccc gctgagaaaa ttcgggaggc gctccaagta ggcaaaaatg aggcaattta 300
 tgaactgatt cgccgccgaa tgtagacgg cgaaccaatg acagttgaaa aaattttatt 360
 gccacaggca tacgtacaag gccatacgaa gcaagacttc gagggctctc ttttctgctt 420
 aatcgagaag aacgtcgaga ttgcttattc gcatcaagaa attgaagcaa tcttagttga 480
 agcggaaaatt tcagaattat tgaatgttcc tgtgggcca ccacttttac aagtccactc 540
 tatcacctat gcgcttgatg caactcctat tttatatgat gtctctttat atcgagcaga 600
 tcggtacacg tttaaaaaca cactgaccgc ctatagcccg tctgaaaaca accaagtggg 660
 gctaggaggt tcttggaacg aatgaagatc aaagaagaaa tagccgctca aaaagattta 720
 ttttatgaag acttaaacaa aattatcgcg attcgaagtg tgaaagggtc gcctaaaaaa 780
 gaggcacctt ttggcgaagg accgaaaaga gccttggaag aaacgctgaa acttgcaag 840
 cgttatggtt ttcaaactgg gattgtcaat gacgcagttg gctatgcgca atggggaaca 900
 gcggaagaat atctgggaat tattggtcat ttagatgtag taccagaagg ttctggttgg 960
 tcagtgcgcg cctttcaatt aacgaaaaaa aatcaacgtt tgtatggtag aggaattcta 1020
 gataataaag gtccatctct ggcttgctg tatggaatga aattactgaa agaacttggt 1080
 taccaaccaa agaaaaccat tcgcttaatg tttggcacgg atgaagaaag tgggagtggg 1140
 gatatcccct tatattttaga gaaggaaaac gcaccggtt ttggatttac tccagattgt 1200

```

aaatatccag tagtttatgg ggagcggagg attgttaatt atgagatcac aacgaccatc 1260
ccagatgatt caagtgaaca aattgggtcag attataggtg atcaagcaaa agaccacgta 1320
cctgatcaat taagtgtggt gattgcgagg aaaacaacag caatcacggg aaaacgtgct 1380
ccttccaatg cgccagaact aggcaagaac gcgattactt tattggcaca gaaaattagc 1440
gaggaacagt tagtcaaagg aaatttatta cagtatttcg actggttaac cgctagtttt 1500
cacgaaaagc actatggcga aggagtagct ctggacttta aggatcagga tagtgggcaa 1560
ttgattttta cgccctatgc gttggaaaaa agaggacagc aattgggtgt atcattggcc 1620
gtgcggttat ctgtttctat tacagaaaac gaagtaacca cgagctaac gaaggcacta 1680
tttccagaaa gtgaagtgc cgtcatccgc cgctcccta gtacgtgtt tccaaaagat 1740
gagcgcaatg ttcaaaaatt aaccaaggtt tatgaacaaa ttactggctt agatgggacg 1800
ccagtcacaa ctacaggtgc tacgtatgct cgctttatgc cgaatatcgt tgcttttggg 1860
ccatcatctt ctggtcaaaa aggcatcgcg cataaccaag atgaatatat ggatgaaaaa 1920
gatttactgc ttaatctgga aatctatatg caagcgatga ttgcattaac agaagcataa 1980
aaccaataga agatacacgt atgagaagaa gacaatgtgt ttcgtagagg tcgcatacgt 2040
gtatcttcta tttttctgta taaaatttca ttttcagtat atacaaaaca gtatatacta 2100
gtttataatg gtggagaaat gtaagcggtt acgaaagggc ggatggaaaa tgacttgggg 2160
tgcaattgcg acatggcgga tggcacatga tgggttacta aaagctacag aagaattaca 2220
acaaggaggt gctgcaggca cggccgtgga acaattaatt aaagaagtag aagactatcc 2280
tttttataag tcagtgggct acggcgggtt acctaattgag gaagggtatt tagaaatgga 2340

```

<210> 23
 <211> 1299
 <212> DNA
 <213> *Enterococcus faecalis*

```

<400> 23
atgaagatca aagaagaaat agccgctcaa aaagatttat tttatgaaga cttaaacaaa 60
attatcgcgga ttggaagtgt gaaaggggtcg cctaaaaaag aggcaccttt tggcgaagga 120
ccgaaaagag ccttgggaaga aacgctgaaa cttgcagagc gttatggttt tcaaactggg 180
attgtcaatg acgcagttgg ctatgcgcaa tggggaacag cggaagaata tctgggaatt 240
attggtcatt tagatgtagt accagaaggt tctggttggg cagtgcgcgc ctttcaatta 300
acgaaaaaaa atcaacgttt gtatggtaga ggaattctag ataataaagg tcctatcttg 360
gcttgccctgt atggaatgaa attactgaaa gaacttgggtt accaaccaaa gaaaaccatt 420
cgcttaatgt ttggcacgga tgaagaaagt gggagtggag atatccctt atatttagag 480
aaggaaaacg caccggtttt tggatttact ccagattgta aatatccagt agtttatggg 540
gagcgaggga ttgttaatta tgagatcaca acgaccatcc cagatgattc aagtgaacaa 600
attggtcaga ttataggtga tcaagcaaaa gaccacgtac ctgatcaatt aagtgtggtg 660
attgcgggaa aaacaacagc aatcacggga aaacgtgctc cttccaatgc gccagaacta 720
ggcaagaacg cgattacttt attggcacag aaaattagcg aggaacagtt agtcaaagga 780
aatttattac agtatttcga ctggttaacc gctagttttc acgaaaagca ctatggcgaa 840
ggagtagctc tggactttta ggatcaggat agtgggcaat tgattttaac gccctatgcy 900
ttggaaaaaa gaggacagca attggtgtta tcattggccg tgcgttatcc tgtttctatt 960
acagaaaacg aagtaaccac gcagctaacg aaggcactat ttccagaaag tgaagtgacc 1020
gtcatccgcc gcctccctag tacgctgttt ccaaaagatg agcgcaatgt tcaaaaatta 1080
accaagggtt atgaacaaat tactggctta gatgggacgc cagtcacaac tacaggtgct 1140
acgtatgctc gctttatgcc gaatatcggt gcttttggtc catcatttcc tgggtcaaaa 1200
ggcattgcyg ataaccaaga tgaatatatg gatgaaaaag atttactgct taatctggaa 1260
atctatatgc aagcgatgat tgcattaaca gaagcataa 1299

```

<210> 24
 <211> 432
 <212> PRT
 <213> *Enterococcus faecalis*

```

<400> 24
Met Lys Ile Lys Glu Glu Ile Ala Ala Gln Lys Asp Leu Phe Tyr Glu
1           5           10          15
Asp Leu Asn Lys Ile Ile Ala Ile Arg Ser Val Lys Gly Ser Pro Lys

```


cattttttat	taaattacat	atttghtaata	ggaatttct	gtgaaatgag	gtatcctaag	60
aaaggtgata	aaacacagag	gtaaaggagt	gacacgatga	gtcgtgtaga	tcgttataaa	120
catattcatg	aaaaatcgag	accagcagag	cataaaaaga	cctttaatcc	ccgaaaatca	180
atgggtgaac	atagagaaga	agaaccagaa	gaactagctg	aaagccttca	agagccagtt	240
tacgaagaca	gctatactga	ggacagtcgc	agaagtgaga	ggcgacatca	aacagattca	300
ggtggtggca	acggttctga	ccaaccaccc	cgcggaaaaa	aagacaagaa	accaaaaaag	360
aaacgtaaaa	aatcaaaaac	aaaacgcttt	ttcaaattggc	tagtgatcct	attgattctg	420
ttatttgcct	atagtacagt	catgttttta	aaaggaaaat	ctgcagcaga	acatgatgac	480
tcgttgcttc	aagaaaaagt	agaaacattt	aatggtgtca	aaagtagcaa	cggggctaag	540
aatattttta	ttcttggcag	cgatacacgt	ggggaagatg	ctggacgagc	cgacacaata	600
atggttctcc	aactaaatgg	accatcaaaa	aaaccgaaat	taatttcatt	tatgcgtgat	660
acattcgtgg	acattcctgg	tgtcggggccg	aataaaaatta	atgccgcata	cgcttatggc	720
ggtgctgaat	tggttcgtga	aacgttaaaa	caaaacttta	atttagatac	gaaatattat	780
gctaaggtag	atttccaatc	atttgaaaaa	attgttgact	ctatgtttcc	aaaagggtgc	840
aaaatcgatg	cagaaaaatc	actgaattta	gatggtgttg	atattgaaaa	agggcaacag	900
gtcatggatg	gacatgtctt	acttcaatac	gctcgtttta	ggatggatga	agaaggcgac	960
tttggtcggg	ttcgtcgcca	acaacaagtt	atgtcagctg	taatgagcca	aatgaaaaac	1020
ccaatgactt	tattaagaac	cccagaatca	cttgggaaat	tagtcggcta	tatgtcgaca	1080
gatgtgcctg	ttagtttcat	gttaacgaat	ggaccatcat	tgttgattaa	aggaaaagca	1140
ggggttgagt	cattatcggt	tccggtacca	gattcttgga	attttggtga	atcctcttat	1200
gcaggcagta	ttttagaagt	agatgaacaa	aaaaatgctg	acgccatcga	aaaattcctg	1260
aacgaataag	gaaagcattt	taaaatatcc	ttttttatgc	tatattagaa	acaacgtgga	1320
aaattagtga	aacgaggtta	caaaatgaaa	attgctattg	tgacagatag	tacagcttat	1380
ttaccggagc	gcattaaaga	tcattccgaat	ctttttgtaa	ttcccatccc	agtcatttta	1440
gatggaaaaa	tataacaacga	aggcattgac	attgaagcag	atgaatatta	tgcattgcta	1500
aataatagta	aagaatttcc	gacgacttca	caacctgctt	taggagaagt	gttagagctt	1560
tacaaatcaa	tcgctgaaca	agggtacgac	accatcatca	gcattcatct	ttcttcagga	1620
atctctggtt	ttgttcatac	attgcacgga	cttaccgatg	aaatcccagg	cgttgctttg	1680
tatccatattg	actcaaaaat	tacaagtatg	ccaatgggac	acatggtaga	agctgcttta	1740
gatttaacag	aagaaaaagc	cagcttagaa	gaaatttttg	ccaaattaga	tttaattcgt	1800
gacaatacgt	atgcatactt	aattgtagaa	gatctgaaca	acttagttcg	tggcgggtcg	1860
ttaacgaatg	gcgcagcctt	gatcgtctga	ctattgaaga	ttaaacctat	cttgactttt	1920
gaagatggaa	agattgtatt	atttgaaaaa	atccgttcaa	caaagaaagc	ttttgctcgt	1980
gcagaaaaaga	ttattggtga	acgaaacgca	gggattgaag	caccagttaa	actgtatgtg	2040
attcatgccca	ataaccgcat	cgttgctgaa	aaagaacaag	caaaattaca	aaagctatac	2100
ccaaatgcag	aaattgaaat	tgggtcatttt	ggtccagtta	tcgggaccca	cctaggggaa	2160
aaagcaattg	gttttagcgt	ttcagctcaa	taataaaaaga	tgagacaaaa	gtaaactact	2220
tctgtctcat	cttttattct	attattttat	cgttcgtctg	tgttactcag	ccgaacactt	2280
tttgtttata	agaaaatgta	aaattactcc	tttttattag	aaaatatctt	gcaaattaag	2340
caattcctta	caaagtaatg	ta				2362

<210> 26
 <211> 849
 <212> DNA
 <213> *Enterococcus faecalis*

<400> 26						
atgaaaattg	ctattgtgac	agatagtaga	gcttattttac	ccgagcgcac	taaagatcat	60
ccgaatcttt	ttgtaattcc	catcccagtc	atttttagatg	gaaaaatata	caacgaaggc	120
attgacattg	aagcagatga	atattatgca	ttgctaaata	atagtaaaga	atttccgacg	180
acttcacaac	ctgcttttagg	agaagtgtta	gagctttaca	aatcaatcgc	tgaacaaggg	240
tacgacacca	tcatacagcat	tcattctttct	tcaggaaatct	ctgggtttgt	tcatacattg	300
caaggactta	ccgatgaaat	cccaggcggt	gctttgtatc	catatgactc	aaaaattaca	360
agtatgccaa	tgggacacat	ggtagaagct	gcttttagatt	taacagaaga	aaaagccagc	420
ttagaagaaa	tttttgccaa	attagattta	attcgtgaca	atacgtatgc	atatctaatt	480
gtagaagatc	tgaacaactt	agttcgtggc	ggtcgtctaa	cgaatggcgc	agccttgatc	540
gctggactat	tgaagattaa	acctatcttg	acttttgaag	atggaaagat	tgtattattt	600
gaaaaaatcc	gttcaacaaa	gaaagctttt	gctcgtgcag	aaaagattat	tgggtgaacga	660
aacgcaggga	ttgaagcacc	agttaaactg	tatgtgattc	atgccaatata	ccgcacgtgt	720

gctgaaaaag aacaagcaaa attacaaaaag ctatacccaa atgcagaaat tgaaattggt 780
 cattttggtc cagttatcgg gaccaccta ggggaaaaag caattgggtt agcgatttca 840
 gctcaataa 849

<210> 27
 <211> 282
 <212> PRT
 <213> Enterococcus faecalis

<400> 27
 Met Lys Ile Ala Ile Val Thr Asp Ser Thr Ala Tyr Leu Pro Glu Arg
 1 5 10 15
 Ile Lys Asp His Pro Asn Leu Phe Val Ile Pro Ile Pro Val Ile Leu
 20 25 30
 Asp Gly Lys Ile Tyr Asn Glu Gly Ile Asp Ile Glu Ala Asp Glu Tyr
 35 40 45
 Tyr Ala Leu Leu Asn Asn Ser Lys Glu Phe Pro Thr Thr Ser Gln Pro
 50 55 60
 Ala Leu Gly Glu Val Leu Glu Leu Tyr Lys Ser Ile Ala Glu Gln Gly
 65 70 75 80
 Tyr Asp Thr Ile Ile Ser Ile His Leu Ser Ser Gly Ile Ser Gly Phe
 85 90 95
 Val His Thr Leu His Gly Leu Thr Asp Glu Ile Pro Gly Val Ala Leu
 100 105 110
 Tyr Pro Tyr Asp Ser Lys Ile Thr Ser Met Pro Met Gly His Met Val
 115 120 125
 Glu Ala Ala Leu Asp Leu Thr Glu Glu Lys Ala Ser Leu Glu Glu Ile
 130 135 140
 Phe Ala Lys Leu Asp Leu Ile Arg Asp Asn Thr Tyr Ala Tyr Leu Ile
 145 150 155 160
 Val Glu Asp Leu Asn Asn Leu Val Arg Gly Gly Arg Leu Thr Asn Gly
 165 170 175
 Ala Ala Leu Ile Ala Gly Leu Leu Lys Ile Lys Pro Ile Leu Thr Phe
 180 185 190
 Glu Asp Gly Lys Ile Val Leu Phe Glu Lys Ile Arg Ser Thr Lys Lys
 195 200 205
 Ala Phe Ala Arg Ala Glu Lys Ile Ile Gly Glu Arg Asn Ala Gly Ile
 210 215 220
 Glu Ala Pro Val Lys Leu Tyr Val Ile His Ala Asn Asn Arg Ile Val
 225 230 235 240
 Ala Glu Lys Glu Gln Ala Lys Leu Gln Lys Leu Tyr Pro Asn Ala Glu
 245 250 255
 Ile Glu Ile Gly His Phe Gly Pro Val Ile Gly Thr His Leu Gly Glu
 260 265 270
 Lys Ala Ile Gly Leu Ala Ile Ser Ala Gln
 275 280

<210> 28
 <211> 2203
 <212> DNA
 <213> Enterococcus faecalis

<400> 28
 gagattatct aaagaaaagt aagcacaatt cgagggtttca atgtttttttt caaagggatg 60
 attttctaga atgtcacaag aaaagatcat tttatagtagt tgaaatagtt gaggaatgtc 120
 ttttcgttta tctgtatcat aaacagcaag caattctttt gctgtaacaa ctaagccagt 180
 ttcttccaat acttcttttt caatatatttc tttaggagag cagccaattt cggcatagcc 240
 accaggtaat gaccattctt tgggtccgtaa atcttcaact aataaaaaac gattctcttt 300

```

ttttatcaaa cgcgcaacat ctactttcgg tgttgataa ccttcttctt tagttaagat 360
tttttctaag tggggcaaga cagtcgcttc gtgtccggtt gcgctaataa gttgtaacgt 420
aagttctcgt agttcttggg aacgttcttg atcaaaagca tctttcccgt aaaaaagacc 480
agcatctgcc aatgctagca accgcttata agtggtcaga taatccatat acgcacgctc 540
ctcatagact taatacgttt agtttaacag aaaaaataa agaaagggca gatttagcga 600
gaaaaggcgt cgttttaagg aaataataaa gaataaatga ctaacttaca tttttaaaact 660
acctatgcta ttatttaata aaaaagattg ggtatacaat aattttgtta tgtaaaacaa 720
aaggagggtt taaattgaaa gaatttacia ttataaggga aaaaaatgca gataaaaaga 780
ctcaggcagc acaagaagta ttgtttaatc ttccagaatg gtttggcctt gaaaaagaga 840
cccgcaagta tatcgatata gctagcactt tacctatgtg ggtggcaaaag gatgtagaga 900
ataaaatact cggttttata acactttcag aaacaagtaa agatacagta gaaatccatt 960
gtatggcagt taaaaagcgg tatcatcgca aaggtatcgg caagttattg atagaaagcg 1020
tggaacgta ttctaaaaat aactattttt ttattcaagt caaaacagtt gacgaaggaa 1080
attattccgt gtacgatcat actattcgtt ttacgaatc attgggtttt aagcgccttg 1140
agggttttcc gacattatgg gacgcttggg atccttggtt aattttaatt aaacagttga 1200
tttaatctac aaaggagttt tagtatgtca gtatttatta gagagtgtac cgtcgcagac 1260
gtaccagaat tagaggccat ttgccaagag acttttgcag atacttatgg agatggcgaa 1320
aacgaaaagg atttacaggc acattatgag aggaaattta gtccagcagt tttagaaagc 1380
gaaatcttac ataaagattc gcaatatttc tttgcttttt ataataatga acttgcaggt 1440
tatgtgaaat taaatcacgg tgatgctcag attacctatc aacatccaca agcgttacaa 1500
gttgagcgca tttatattcg taaatctttt aagcgttttag gcttaggcaa acatttgatt 1560
acgaaagcaa ttgaattagc ggaagaagca gaaaaagaga cggtttggtt aggtgtttgg 1620
gaacataatc atccagcgca aaaattttat caatcattgg gcttcgtcaa aacagatgaa 1680
catgattttt atatgggaaa tgaacgccat accgattata caatgacgaa acagttaaaa 1740
gagtcaacgt aaagcaaaaa caaggaaacg gacgcaatga agccgacgat tccttgtttt 1800
tttatcttaa aattgtgaag gagattttcc ataataattt ttgaataatt tactgaaatg 1860
ataggcatct tcgtaaccaa ccgtttttgc cacttctttg acacttaggg aatcattttt 1920
cagcaattct ttcgatggtt ttaagcggat ttgaattaaa taattgattg gcccaacgcc 1980
tgtggccgct ttaaagggtt tcgacaaata agtcggggtc acatatagca tttcagctaa 2040
ctgttccaaa gtaatttctt cgtcatggtg cgtttccaga taataaatcg tatgattgac 2100
taaatttcgt tttctttttt ccgttttcga tagccgagtt tcaattttat tttcttgatc 2160
aactgctaag cttcttaaaa tatagaccaa tagttcaata act 2203

```

<210> 29
 <211> 528
 <212> DNA
 <213> Enterococcus faecalis

```

<400> 29
atgtcagtat ttattagaga gtgtaccgtc gcagacgtac cagaattaga ggccatttgc 60
caagagactt ttgcagatac ttatggagat ggcgaaaacg aaaaggattt acaggcacat 120
tatgagagga aatttagtcc agcagtttta gaaagcgaaa tcttacataa agattcgcaa 180
tatttctttg ctttttataa taatgaactt gcaggttatg tgaaattaaa tcacggtgat 240
gctcagatta cctatcaaca tccacaagcg ttacaagttg agcgcattta tattcgtaaa 300
tcttttaagc gtttaggctt aggcaaacat ttgattacga aagcaattga attagcggaa 360
gaagcagaaa aagagacggt ttggttaggt gtttggaac ataatcatcc agcgcaaaaa 420
ttttatcaat cattgggctt cgtcaaaaca gatgaacatg atttttatat gggaaatgaa 480
cgccataccg attatacaat gacgaaacag ttaaaagagt caacgtaa 528

```

<210> 30
 <211> 175
 <212> PRT
 <213> Enterococcus faecalis

```

<400> 30
Met Ser Val Phe Ile Arg Glu Cys Thr Val Ala Asp Val Pro Glu Leu
1           5           10          15
Glu Ala Ile Cys Gln Glu Thr Phe Ala Asp Thr Tyr Gly Asp Gly Glu
          20          25          30

```

Asn	Glu	Lys	Asp	Leu	Gln	Ala	His	Tyr	Glu	Arg	Lys	Phe	Ser	Pro	Ala
		35					40					45			
Val	Leu	Glu	Ser	Glu	Ile	Leu	His	Lys	Asp	Ser	Gln	Tyr	Phe	Phe	Ala
	50					55					60				
Phe	Tyr	Asn	Asn	Glu	Leu	Ala	Gly	Tyr	Val	Lys	Leu	Asn	His	Gly	Asp
65					70					75					80
Ala	Gln	Ile	Thr	Tyr	Gln	His	Pro	Gln	Ala	Leu	Gln	Val	Glu	Arg	Ile
				85					90					95	
Tyr	Ile	Arg	Lys	Ser	Phe	Lys	Arg	Leu	Gly	Leu	Gly	Lys	His	Leu	Ile
			100					105					110		
Thr	Lys	Ala	Ile	Glu	Leu	Ala	Glu	Glu	Ala	Glu	Lys	Glu	Thr	Val	Trp
		115				120						125			
Leu	Gly	Val	Trp	Glu	His	Asn	His	Pro	Ala	Gln	Lys	Phe	Tyr	Gln	Ser
	130					135					140				
Leu	Gly	Phe	Val	Lys	Thr	Asp	Glu	His	Asp	Phe	Tyr	Met	Gly	Asn	Glu
145					150					155					160
Arg	His	Thr	Asp	Tyr	Thr	Met	Thr	Lys	Gln	Leu	Lys	Glu	Ser	Thr	
				165					170					175	

<210> 31
 <211> 8347
 <212> DNA
 <213> Enterococcus faecalis

<220>
 <221> CDS
 <222> (162)...(1028)

<221> CDS
 <222> (1065)...(2090)

<221> CDS
 <222> (2113)...(3189)

<221> CDS
 <222> (3191)...(4357)

<221> CDS
 <222> (4391)...(5485)

<221> CDS
 <222> (5492)...(6778)

<221> CDS
 <222> (6795)...(7304)

<221> CDS
 <222> (7312)...(8160)

<400> 31
 ccatgtagat ttaagaaaat ctatagtggc ttttatattg cttttttgta gggatttcac 60
 tgtagatattt tcttaaaatt tactgtgaat atcctttttg tttggccaaa aattaggatt 120
 tcagaaaactt actaaaaaaa tttcgtaaag gagcacacag g atg aaa gaa ata act 176
 Met Lys Glu Ile Thr
 1 5

gga gcc act cgt tta gct ggg cta ttc gcg aaa ccc agc caa cac agt 224
 Gly Ala Thr Arg Leu Ala Gly Leu Phe Ala Lys Pro Ser Gln His Ser

10										15					20					
att tca ccg ttg att cat aat aca gca ttt caa aat tta gga gtt gat	272																			
Ile Ser Pro Leu Ile His Asn Thr Ala Phe Gln Asn Leu Gly Val Asp																				
25 30 35																				
gct cgg tat ctg gcg ttt gac gtt gga caa gag aca ttg cca caa gca	320																			
Ala Arg Tyr Leu Ala Phe Asp Val Gly Gln Glu Thr Leu Pro Gln Ala																				
40 45 50																				
att gaa gcg att cga acg ttt cac atg tta ggg gcc aac tta tca atg	368																			
Ile Glu Ala Ile Arg Thr Phe His Met Leu Gly Ala Asn Leu Ser Met																				
55 60 65																				
ccc aat aaa gtg gcg gct gta agt tat atg gat gaa cta agt cct acc	416																			
Pro Asn Lys Val Ala Val Ser Tyr Met Asp Glu Leu Ser Pro Thr																				
70 75 80 85																				
gct caa ctg gtt ggc gca att aat acg att gtc aac aaa gat gga aaa	464																			
Ala Gln Leu Val Gly Ala Ile Asn Thr Ile Val Asn Lys Asp Gly Lys																				
90 95 100																				
ctt tac gga gac agc acg gat ggt act ggt ttt atg tgg agt ttg aaa	512																			
Leu Tyr Gly Asp Ser Thr Asp Gly Thr Gly Phe Met Trp Ser Leu Lys																				
105 110 115																				
gag aaa aag gtt gac gtt ttt cag aat aaa atg acc atc tta gga aca	560																			
Glu Lys Lys Val Asp Val Phe Gln Asn Lys Met Thr Ile Leu Gly Thr																				
120 125 130																				
ggt ggt gca gcc tta tca atc att gcc caa gct gct tta gat ggc gtg	608																			
Gly Gly Ala Ala Leu Ser Ile Ile Ala Gln Ala Ala Leu Asp Gly Val																				
135 140 145																				
aaa gaa atc gcc gtt tac aac agg aaa agc gcg ggc ttt aac gac agt	656																			
Lys Glu Ile Ala Val Tyr Asn Arg Lys Ser Ala Gly Phe Asn Asp Ser																				
150 155 160 165																				
caa aaa aaa ctg gca aat ttc act gaa cga acc aac tgt gta att cat	704																			
Gln Lys Lys Leu Ala Asn Phe Thr Glu Arg Thr Asn Cys Val Ile His																				
170 175 180																				
tta aac gat tta gcg gat act gaa aaa cta gca aaa gat gtt gct gaa	752																			
Leu Asn Asp Leu Ala Asp Thr Glu Lys Leu Ala Lys Asp Val Ala Glu																				
185 190 195																				
agc gtc ttg tta gtt aat gca acg agt gtg ggt atg cat cca cat gcg	800																			
Ser Val Leu Leu Val Asn Ala Thr Ser Val Gly Met His Pro His Ala																				
200 205 210																				
cat agt agt cct ata gaa aat tat gca atg att caa ccg aag tta ttt	848																			
His Ser Ser Pro Ile Glu Asn Tyr Ala Met Ile Gln Pro Lys Leu Phe																				
215 220 225																				
gtg tat gat gct att tat aat ccc aga gaa aca cag tta tta aaa gaa	896																			
Val Tyr Asp Ala Ile Tyr Asn Pro Arg Glu Thr Gln Leu Leu Lys Glu																				
230 235 240 245																				
gcc cgt tta cgt ggt gca gaa aca agc aac ggc ttg gac atg cta ctt	944																			

Ala Arg Leu Arg Gly Ala Glu Thr Ser Asn Gly Leu Asp Met Leu Leu	
250 255 260	
tat caa ggc gct gct gct ttt gaa caa tgg aca gga caa aaa atg cct	992
Tyr Gln Gly Ala Ala Phe Glu Trp Thr Gly Gln Lys Met Pro	
265 270 275	
gta tca gtc gta aaa cgt aaa att gaa aat aga taa aaagagcgcc	1038
Val Ser Val Val Lys Arg Lys Ile Glu Asn Arg *	
280 285	
gttttaaaggc atgaggagag aatata atg atc gta att atg aaa gaa aat gca	1091
Met Ile Val Ile Met Lys Glu Asn Ala	
290 295	
acc gaa aag caa atg aaa caa gtc att gat tta gta aca ggt gca ggc	1139
Thr Glu Lys Gln Met Lys Gln Val Ile Asp Leu Val Thr Gly Ala Gly	
300 305 310	
tta act act caa aca agt caa gat aat gga aaa aca gtg ata ggc ttg	1187
Leu Thr Thr Gln Thr Ser Gln Asp Asn Gly Lys Thr Val Ile Gly Leu	
315 320 325	
att ggt gat aca gaa aaa tta gtt gaa gca gag tta aca gca tta gaa	1235
Ile Gly Asp Thr Glu Lys Leu Val Glu Ala Glu Leu Thr Ala Leu Glu	
330 335 340 345	
ggc gtg gag aaa agt gtc cgc att tcg ttg tct tac aaa cta acg agt	1283
Gly Val Glu Lys Ser Val Arg Ile Ser Leu Ser Tyr Lys Leu Thr Ser	
350 355 360	
cgt tta ttt cat cca gag aat aca gtg gtt gat gtg aac ggt gtt aaa	1331
Arg Leu Phe His Pro Glu Asn Thr Val Val Asp Val Asn Gly Val Lys	
365 370 375	
atc ggt gac ggc agt atg acc atg atg gcg ggc cct tgt tca atc gaa	1379
Ile Gly Asp Gly Ser Met Thr Met Met Ala Gly Pro Cys Ser Ile Glu	
380 385 390	
agc tta gat cag att cgc gaa tgt gcg cga att gct aaa gct gga ggt	1427
Ser Leu Asp Gln Ile Arg Glu Cys Ala Arg Ile Ala Lys Ala Gly Gly	
395 400 405	
gca aca att tta cga ggt ggt gca ttc aaa cct aga acg tcg cca tac	1475
Ala Thr Ile Leu Arg Gly Gly Ala Phe Lys Pro Arg Thr Ser Pro Tyr	
410 415 420 425	
gct ttc caa gga cta gaa gaa gaa gga cta aaa tac att cgc caa gcg	1523
Ala Phe Gln Gly Leu Glu Glu Glu Gly Leu Lys Tyr Ile Arg Gln Ala	
430 435 440	
gct gat gaa tta gat atg caa gtc att aca gaa gtg atg gat gaa gcg	1571
Ala Asp Glu Leu Asp Met Gln Val Ile Thr Glu Val Met Asp Glu Ala	
445 450 455	
aat tta gaa ctt gtc gca aaa tac agt gac att tta caa atc ggt gcg	1619
Asn Leu Glu Leu Val Ala Lys Tyr Ser Asp Ile Leu Gln Ile Gly Ala	
460 465 470	

cgc aac atg caa aat ttc aag tta tta caa gcg gtt ggt aaa act gga	1667
Arg Asn Met Gln Asn Phe Lys Leu Leu Gln Ala Val Gly Lys Thr Gly	
475 480 485	
aaa cct att ggc tta aaa cgc ggg att gct ggt acg att gat gaa tgg	1715
Lys Pro Ile Gly Leu Lys Arg Gly Ile Ala Gly Thr Ile Asp Glu Trp	
490 495 500 505	
cta aac gca gct gaa tac att gct gcg caa gga aat ttc aat gtg atc	1763
Leu Asn Ala Ala Glu Tyr Ile Ala Ala Gln Gly Asn Phe Asn Val Ile	
510 515 520	
ttc att gaa cgt ggg att cgt acg tac gaa acc gct acg cgc aat aca	1811
Phe Ile Glu Arg Gly Ile Arg Thr Tyr Glu Thr Ala Thr Arg Asn Thr	
525 530 535	
ctt gat tta agt gcg gtg cct tta att aaa aaa tta agt cat ttt cca	1859
Leu Asp Leu Ser Ala Val Pro Leu Ile Lys Lys Leu Ser His Phe Pro	
540 545 550	
att att gtt gat ccg agt cat ggt gtt ggt atc tgg gat tta gta ccg	1907
Ile Ile Val Asp Pro Ser His Gly Val Gly Ile Trp Asp Leu Val Pro	
555 560 565	
cca atg gcc cga gca ggt gtt gct tca ggt gcg gac ggc ttg att gta	1955
Pro Met Ala Arg Ala Gly Val Ala Ser Gly Ala Asp Gly Leu Ile Val	
570 575 580 585	
gaa att cat cca gat cca gcg aat gcg tgg tca gat ggg cca caa tcc	2003
Glu Ile His Pro Asp Pro Ala Asn Ala Trp Ser Asp Gly Pro Gln Ser	
590 595 600	
ttg aat gaa aaa act tac cta cgt atg atg aaa gaa gtt cat atc atc	2051
Leu Asn Glu Lys Thr Tyr Leu Arg Met Met Lys Glu Val His Ile Ile	
605 610 615	
gaa aaa gca atg aaa gaa att aat gct tta gaa gat tag taaagacaga	2100
Glu Lys Ala Met Lys Glu Ile Asn Ala Leu Glu Asp *	
620 625	
ggagtagagg ac atg aaa tta acc gta acg tta cct aca cat tca tat gat	2151
Met Lys Leu Thr Val Thr Leu Pro Thr His Ser Tyr Asp	
630 635 640	
tta acc atc gaa aca ggt gcc tta gat aaa att ggc acc tgg gta cgt	2199
Leu Thr Ile Glu Thr Gly Ala Leu Asp Lys Ile Gly Thr Trp Val Arg	
645 650 655	
agc ctg tgg cag cca caa cgg gta gcg att att acc gat gaa acg gtg	2247
Ser Leu Trp Gln Pro Gln Arg Val Ala Ile Ile Thr Asp Glu Thr Val	
660 665 670	
aat aaa tta tat ggc gca gct gtt gag aaa gaa ttg caa gct gct ggt	2295
Asn Lys Leu Tyr Gly Ala Ala Val Glu Lys Glu Leu Gln Ala Ala Gly	
675 680 685 690	
ttt gaa aca tca ttg att gct gta gcg gca ggt gaa caa agt aag agc	2343
Phe Glu Thr Ser Leu Ile Ala Val Ala Gly Glu Gln Ser Lys Ser	
695 700 705	

ctc gaa ata gct caa ctg ctt tat gat ttt tta gcg gaa cag caa ttg	2391
Leu Glu Ile Ala Gln Leu Leu Tyr Asp Phe Leu Ala Glu Gln Gln Leu	
710 715 720	
act cga agt gat ggt cta att gct tta ggt gga ggc gtt gtg gga gat	2439
Thr Arg Ser Asp Gly Leu Ile Ala Leu Gly Gly Gly Val Val Gly Asp	
725 730 735	
cta gct gga ttt gtc gct tca acc tat atg cgc ggt att cac ttt ttg	2487
Leu Ala Gly Phe Val Ala Ser Thr Tyr Met Arg Gly Ile His Phe Leu	
740 745 750	
caa gta cca aca acc tta ctg gca caa gta gat agt agc att gga ggt	2535
Gln Val Pro Thr Thr Leu Leu Ala Gln Val Asp Ser Ser Ile Gly Gly	
755 760 765 770	
aaa aca gcg gtt aat act aaa aaa gcc aaa aat ctt gtc ggt act ttt	2583
Lys Thr Ala Val Asn Thr Lys Lys Ala Lys Asn Leu Val Gly Thr Phe	
775 780 785	
gcc caa cca gat ggg gtt tta att gat cct aat aca ctt aaa aca tta	2631
Ala Gln Pro Asp Gly Val Leu Ile Asp Pro Asn Thr Leu Lys Thr Leu	
790 795 800	
gaa cct aga cgt gtg cgt gaa gga att gca gaa att gta aaa tca gca	2679
Glu Pro Arg Arg Val Arg Glu Gly Ile Ala Glu Ile Val Lys Ser Ala	
805 810 815	
gct atc gct gat gtt gaa ttg tgg cac cgt tta tcc tct ttg gaa aat	2727
Ala Ile Ala Asp Val Glu Leu Trp His Arg Leu Ser Ser Leu Glu Asn	
820 825 830	
gaa caa gat tta gtg gca cat gca gaa gaa att atc acg gcc tgt tgc	2775
Glu Gln Asp Leu Val Ala His Ala Glu Glu Ile Ile Thr Ala Cys Cys	
835 840 845 850	
aag att aaa cgt gat gtc gtc gaa gaa gat gaa tta gat ttg ggc tta	2823
Lys Ile Lys Arg Asp Val Val Glu Glu Asp Glu Leu Asp Leu Gly Leu	
855 860 865	
cgt ttg att ctg aat ttt ggg cat acg atc ggc cac gca tta gaa aat	2871
Arg Leu Ile Leu Asn Phe Gly His Thr Ile Gly His Ala Leu Glu Asn	
870 875 880	
aca gct ggt tac ggg gtg att gct cac ggt gaa ggc gtt tct tta gga	2919
Thr Ala Gly Tyr Gly Val Ile Ala His Gly Glu Gly Val Ser Leu Gly	
885 890 895	
atg att caa ata act caa gtc gca gaa caa caa ggg ctt tcc cca ctt	2967
Met Ile Gln Ile Thr Gln Val Ala Glu Gln Gln Gly Leu Ser Pro Leu	
900 905 910	
ggg act acc caa gag ttg gtc acc atg cta gaa aag ttc cat tta cca	3015
Gly Thr Thr Gln Glu Leu Val Thr Met Leu Glu Lys Phe His Leu Pro	
915 920 925 930	
gta acc aca gat cgt tgg tca gaa gaa cgt ctc tat caa gca att aca	3063
Val Thr Thr Asp Arg Trp Ser Glu Glu Arg Leu Tyr Gln Ala Ile Thr	

935	940	945	
cat gat aaa aaa aca cgt ggg gga	cag att aaa atc att gtc tta gaa	3111	
His Asp Lys Lys Thr Arg Gly Gly	Gln Ile Lys Ile Ile Val Leu Glu		
950	955 960		
aaa att ggt caa gcg aaa att gtc tct tta cca acg gaa gaa att cga	3159		
Lys Ile Gly Gln Ala Lys Ile Val Ser Leu Pro Thr Glu Glu Ile Arg			
965	970 975		
gca ttt tta aac aga gaa gga gga att taa g atg cgc ttt att aca gca	3208		
Ala Phe Leu Asn Arg Glu Gly Gly Ile *	Met Arg Phe Ile Thr Ala		
980	985 990		
ggc gaa tca cat gga cct gaa tta act gct att att gaa ggc tta cca	3256		
Gly Glu Ser His Gly Pro Glu Leu Thr Ala Ile Ile Glu Gly Leu Pro			
995	1000 1005		
gcc ggc ttg cct tta agt agc gaa gag att aac cga gaa tta gca aga	3304		
Ala Gly Leu Pro Leu Ser Ser Glu Glu Ile Asn Arg Glu Leu Ala Arg			
1010	1015 1020 1025		
cgt caa ggc ggt tac ggt cgt ggg gga cgg atg aaa att gaa aaa gac	3352		
Arg Gln Gly Gly Tyr Gly Arg Gly Gly Arg Met Lys Ile Glu Lys Asp			
1030	1035 1040		
caa gta cgt att act tcg ggt att cgg cat ggt aaa aca ctt ggc tca	3400		
Gln Val Arg Ile Thr Ser Gly Ile Arg His Gly Lys Thr Leu Gly Ser			
1045	1050 1055		
cca gta acg ttg att gtc gaa aac aaa gac tgg aaa aat tgg acc tcc	3448		
Pro Val Thr Leu Ile Val Glu Asn Lys Asp Trp Lys Asn Trp Thr Ser			
1060	1065 1070		
gtg atg tca gta gag cca gtt cct gaa aaa caa aag aaa atc cgc cgc	3496		
Val Met Ser Val Glu Pro Val Pro Glu Lys Gln Lys Lys Ile Arg Arg			
1075	1080 1085		
gtc agc aaa cca cgt cca gga cat gct gat tta gtc ggt ggc atg aaa	3544		
Val Ser Lys Pro Arg Pro Gly His Ala Asp Leu Val Gly Gly Met Lys			
1090	1095 1100 1105		
tat caa cat gat gat tta cgg aat gtt tta gaa cgg tct tcg gca cga	3592		
Tyr Gln His Asp Asp Leu Arg Asn Val Leu Glu Arg Ser Ser Ala Arg			
1110	1115 1120		
gaa aca acg atg cgt gtg gcg att ggt gcg gtt gct aaa aaa ctc tta	3640		
Glu Thr Thr Met Arg Val Ala Ile Gly Ala Val Ala Lys Lys Leu Leu			
1125	1130 1135		
gct gaa ctg gat atc caa gtc gct ggg cat gtc gcg gta tta ggt ggg	3688		
Ala Glu Leu Asp Ile Gln Val Ala Gly His Val Ala Val Leu Gly Gly			
1140	1145 1150		
att gaa gct acg atc cct gaa aat tta acg att cgt gaa att caa gaa	3736		
Ile Glu Ala Thr Ile Pro Glu Asn Leu Thr Ile Arg Glu Ile Gln Glu			
1155	1160 1165		
cga tct gaa caa tct gcc gtt cgc gta tta gat cct tcc gta gaa gaa	3784		

Arg	Ser	Glu	Gln	Ser	Ala	Val	Arg	Val	Leu	Asp	Pro	Ser	Val	Glu	Glu		
1170					1175					1180					1185		
aaa atg aaa gaa cta att gac caa acc aag aaa aat ggc gat aca att	3832																
Lys Met Lys Glu Leu Ile Asp Gln Thr Lys Lys Asn Gly Asp Thr Ile					1190				1195					1200			
ggg ggt gta gta gaa gta ctt gtg ggt ggc gtt cca gct ggc tta ggt	3880																
Gly Gly Val Val Glu Val Leu Val Gly Gly Val Pro Ala Gly Leu Gly					1205				1210					1215			
agc tat gtc caa tgg gat cgt aaa cta gat gcc aaa att gcg caa gca	3928																
Ser Tyr Val Gln Trp Asp Arg Lys Leu Asp Ala Lys Ile Ala Gln Ala					1220				1225				1230				
ggt gta agc atc aac gct ttt aca ggt gct gag ttt ggc att gga ttt	3976																
Val Val Ser Ile Asn Ala Phe Thr Gly Ala Glu Phe Gly Ile Gly Phe					1235				1240				1245				
gaa atg gca caa cgc cct ggt agt caa ctg atg gac gag att gtt tgg	4024																
Glu Met Ala Gln Arg Pro Gly Ser Gln Leu Met Asp Glu Ile Val Trp					1250				1255				1260			1265	
gac gaa agt act ggt tat acc aga act tcc aac aat tta ggc ggt ttt	4072																
Asp Glu Ser Thr Gly Tyr Thr Arg Thr Ser Asn Asn Leu Gly Gly Phe					1270				1275							1280	
gaa gga gga atg acc aac gga atg cca atc atc gtt cgt ggt gtc atg	4120																
Glu Gly Gly Met Thr Asn Gly Met Pro Ile Ile Val Arg Gly Val Met					1285				1290					1295			
aaa cct att cca acc ctt tat aaa cca tta caa agc gtg aat att gat	4168																
Lys Pro Ile Pro Thr Leu Tyr Lys Pro Leu Gln Ser Val Asn Ile Asp					1300				1305					1310			
aca aaa gag cct tat aag gcc agt gtt gag cgc tct gat agc acg gcg	4216																
Thr Lys Glu Pro Tyr Lys Ala Ser Val Glu Arg Ser Asp Ser Thr Ala					1315				1320					1325			
gta ccg gcc gct agc gtt gtt tgt gaa gcc gtt gtt gca acg gaa gta	4264																
Val Pro Ala Ala Ser Val Val Cys Glu Ala Val Val Ala Thr Glu Val					1330				1335					1340			1345
gca aag gct atg ctc gaa aaa ttt gat agt gac tca ttt gaa caa atg	4312																
Ala Lys Ala Met Leu Glu Lys Phe Asp Ser Asp Ser Phe Glu Gln Met					1350				1355							1360	
aaa gaa gca gtg aaa cgt tat cgt cta tat act caa aac ttt taa	4357																
Lys Glu Ala Val Lys Arg Tyr Arg Leu Tyr Thr Gln Asn Phe *					1365				1370					1375			
tggaagaaag tcgcaagtat atggagggaa aaa atg aag aaa cgt att tta atc	4411																
Met Lys Lys Arg Ile Leu Ile																1380	
gta gga tta ggg cta atc ggg agt tca ctg gct ttg tgt atc aaa aaa	4459																
Val Gly Leu Gly Leu Ile Gly Ser Ser Leu Ala Leu Cys Ile Lys Lys					1385				1390					1395			

ggg cat cca aac agt gag att atc ggt ttc gat aat caa gcg gag gca	4507
Gly His Pro Asn Ser Glu Ile Ile Gly Phe Asp Asn Gln Ala Glu Ala	
1400 1405 1410	
act gaa ttt gct aag aaa acg ggt cta att gat gag ata gct gaa tct	4555
Thr Glu Phe Ala Lys Lys Thr Gly Leu Ile Asp Glu Ile Ala Glu Ser	
1415 1420 1425 1430	
tta aca agt ggg gca aga cga gca gag att att ttt ctt tgt tcc cca	4603
Leu Thr Ser Gly Ala Arg Arg Ala Glu Ile Ile Phe Leu Cys Ser Pro	
1435 1440 1445	
gtt aaa gca act tta gta caa cta gaa gaa tta aac caa tta tca cta	4651
Val Lys Ala Thr Leu Val Gln Leu Glu Glu Leu Asn Gln Leu Ser Leu	
1450 1455 1460	
gaa act gct ctg atc aca gat gtg ggt agt acc aag gtg gaa att aat	4699
Glu Thr Ala Leu Ile Thr Asp Val Gly Ser Thr Lys Val Glu Ile Asn	
1465 1470 1475	
cag tta gca aca aag ctt aac atg aaa aat ttt att ggt ggt cat cca	4747
Gln Leu Ala Thr Lys Leu Asn Met Lys Asn Phe Ile Gly Gly His Pro	
1480 1485 1490	
atg gct ggt tca cat aaa tcc ggc gta aca gcc gct gat gaa cgt ttg	4795
Met Ala Gly Ser His Lys Ser Gly Val Thr Ala Ala Asp Glu Arg Leu	
1495 1500 1505 1510	
ttt gaa aat gcc tac tat att ttt acc gat gac cat ggc gaa aaa aac	4843
Phe Glu Asn Ala Tyr Tyr Ile Phe Thr Asp Asp His Gly Glu Lys Asn	
1515 1520 1525	
aaa cag att cag gag tta caa acg tta cta aaa gga acg cat gcg aag	4891
Lys Gln Ile Gln Glu Leu Gln Thr Leu Leu Lys Gly Thr His Ala Lys	
1530 1535 1540	
ttt att acg atg cct gca cag gaa cat gat gaa att act ggt gct cta	4939
Phe Ile Thr Met Pro Ala Gln Glu His Asp Glu Ile Thr Gly Ala Leu	
1545 1550 1555	
agt cac ttg cca cat att gtt gcc gca gcg tta gtg aac gaa agt cag	4987
Ser His Leu Pro His Ile Val Ala Ala Ala Leu Val Asn Glu Ser Gln	
1560 1565 1570	
caa ctg aat acc act tac cct aga gcg cag cag cta gcg gct gga gga	5035
Gln Leu Asn Thr Thr Tyr Pro Arg Ala Gln Gln Leu Ala Ala Gly Gly	
1575 1580 1585 1590	
ttc aga gat att act cga att gct tcc tct gat gca acg atg tgg acg	5083
Phe Arg Asp Ile Thr Arg Ile Ala Ser Ser Asp Ala Thr Met Trp Thr	
1595 1600 1605	
gat att tta tta agc aat cgc tta gta tta ttg gac tta cta gaa aat	5131
Asp Ile Leu Leu Ser Asn Arg Leu Val Leu Leu Asp Leu Leu Glu Asn	
1610 1615 1620	
tgg caa aaa gag atg act act gtt tgc caa tgg tta aca gaa aaa aat	5179
Trp Gln Lys Glu Met Thr Thr Val Cys Gln Trp Leu Thr Glu Lys Asn	
1625 1630 1635	

gcc cca gct att cgt aat ttt ttt gat aag gcc aaa gaa aca cgt gct Ala Pro Ala Ile Arg Asn Phe Phe Asp Lys Ala Lys Glu Thr Arg Ala 1640 1645 1650	5227
caa ttg cct att cat aaa gaa ggc gca atc cca gct ttc tat gat ctg Gln Leu Pro Ile His Lys Glu Gly Ala Ile Pro Ala Phe Tyr Asp Leu 1655 1660 1665 1670	5275
ttt gtt gat gta cca gat caa cca gga atc att gct gaa att acg caa Phe Val Asp Val Pro Asp Gln Pro Gly Ile Ile Ala Glu Ile Thr Gln 1675 1680 1685	5323
att tta ggc gaa gcg gac ctt tct ctt aca aat att aaa att tta gaa Ile Leu Gly Glu Ala Asp Leu Ser Leu Thr Asn Ile Lys Ile Leu Glu 1690 1695 1700	5371
acg aga gaa gaa atc tat ggg att ctt caa ttg tct ttt aaa aat caa Thr Arg Glu Glu Ile Tyr Gly Ile Leu Gln Leu Ser Phe Lys Asn Gln 1705 1710 1715	5419
cca gac tgc caa gct gca aaa caa att tta tct aaa aaa acg aac tat Pro Asp Cys Gln Ala Ala Lys Gln Ile Leu Ser Lys Lys Thr Asn Tyr 1720 1725 1730	5467
acg tgt tac gaa aaa taa gaggtg atg agg gtg caa cta cgt aca aat Thr Cys Tyr Glu Lys * Met Arg Val Gln Leu Arg Thr Asn 1735 1740 1745	5515
gtg aag cat tta caa ggg act ctg atg gtt cct agc gac aaa tcg att Val Lys His Leu Gln Gly Thr Leu Met Val Pro Ser Asp Lys Ser Ile 1750 1755 1760	5563
tcc cat aga agt att atg ttt gga gcg att tct tct gga aaa acg acg Ser His Arg Ser Ile Met Phe Gly Ala Ile Ser Ser Gly Lys Thr Thr 1765 1770 1775	5611
att aca aat ttt cta aga ggc gaa gat tgt tta agt acc tta gcg gcg Ile Thr Asn Phe Leu Arg Gly Glu Asp Cys Leu Ser Thr Leu Ala Ala 1780 1785 1790 1795	5659
ttt cgt tct tta ggt gtg aac att gaa gat gac ggg acg aca atc acc Phe Arg Ser Leu Gly Val Asn Ile Glu Asp Asp Gly Thr Thr Ile Thr 1800 1805 1810	5707
gtt gag ggg cga gga ttt gca ggc tta aaa aag gcg aag aat aca att Val Glu Gly Arg Gly Phe Ala Gly Leu Lys Lys Ala Lys Asn Thr Ile 1815 1820 1825	5755
gat gtt gga aat tca ggg aca aca att cgt ctg atg ctg ggc att tta Asp Val Gly Asn Ser Gly Thr Thr Ile Arg Leu Met Leu Gly Ile Leu 1830 1835 1840	5803
gct ggc tgt ccc ttt gaa acg cgc cta gct ggt gat gcg tct att gcc Ala Gly Cys Pro Phe Glu Thr Arg Leu Ala Gly Asp Ala Ser Ile Ala 1845 1850 1855	5851
aaa cga cca atg aat cgt gta atg ctt cct tta aac caa atg gga gcg Lys Arg Pro Met Asn Arg Val Met Leu Pro Leu Asn Gln Met Gly Ala	5899

1860	1865	1870	1875	
gaa tgt caa ggg gtt cag caa acg gag ttt ccg cca att tct att cgc				5947
Glu Cys Gln Gly Val Gln Gln Thr Glu Phe Pro Pro Ile Ser Ile Arg	1880	1885	1890	
ggg act caa aat ttg caa ccg att gac tac aca atg cct gtt gca agt				5995
Gly Thr Gln Asn Leu Gln Pro Ile Asp Tyr Thr Met Pro Val Ala Ser	1895	1900	1905	
gct caa gtt aaa tcg gct att tta ttc gcc gct ttg caa gcc gag ggc				6043
Ala Gln Val Lys Ser Ala Ile Leu Phe Ala Ala Leu Gln Ala Glu Gly	1910	1915	1920	
act tct gta gtg gtt gag aaa gaa aag aca cgt gat cat aca gaa gag				6091
Thr Ser Val Val Val Glu Lys Glu Lys Thr Arg Asp His Thr Glu Glu	1925	1930	1935	
atg att cga caa ttt ggt ggg aca ctt gaa gta gac ggt aaa aaa att				6139
Met Ile Arg Gln Phe Gly Gly Thr Leu Glu Val Asp Gly Lys Lys Ile	1940	1945	1950	1955
atg tta act gga ccg caa caa tta aca ggt caa aat gtg gta gtt cct				6187
Met Leu Thr Gly Pro Gln Gln Leu Thr Gly Gln Asn Val Val Val Pro	1960	1965	1970	
ggt gat atc tct tct gca gct ttc ttt tta gtt gcg ggt tta gta gtc				6235
Gly Asp Ile Ser Ser Ala Ala Phe Phe Leu Val Ala Gly Leu Val Val	1975	1980	1985	
cca gat agc gag ata ctt ctg aaa aat gtt ggc tta aat caa acg ccg				6283
Pro Asp Ser Glu Ile Leu Leu Lys Asn Val Gly Leu Asn Gln Thr Arg	1990	1995	2000	
aca ggt att tta gat gtg att aaa aac atg ggc ggt tcc gtc act att				6331
Thr Gly Ile Leu Asp Val Ile Lys Asn Met Gly Gly Ser Val Thr Ile	2005	2010	2015	
tta aat gaa gat gag gcc aat cat tct ggc gat tta ctt gta aaa acg				6379
Leu Asn Glu Asp Glu Ala Asn His Ser Gly Asp Leu Leu Val Lys Thr	2020	2025	2030	2035
agt caa tta aca gct aca gag att ggt ggc gct att atc cca cgt tta				6427
Ser Gln Leu Thr Ala Thr Glu Ile Gly Gly Ala Ile Ile Pro Arg Leu	2040	2045	2050	
att gat gag tta ccg att att gct ttg tta gct act cag gct act ggc				6475
Ile Asp Glu Leu Pro Ile Ile Ala Leu Leu Ala Thr Gln Ala Thr Gly	2055	2060	2065	
acg aca atc att cga gat gca gaa gaa ttg aaa gtc aaa gaa acc aat				6523
Thr Thr Ile Ile Arg Asp Ala Glu Glu Leu Lys Val Lys Glu Thr Asn	2070	2075	2080	
cgg att gat gca gta gcg aaa gaa tta aca att tta ggc gcc gac atc				6571
Arg Ile Asp Ala Val Ala Lys Glu Leu Thr Ile Leu Gly Ala Asp Ile	2085	2090	2095	
acg cct act gat gat ggc tta att ata cat gga cca act tct tta cat				6619

Thr 2100	Pro	Thr	Asp	Asp	Gly 2105	Leu	Ile	Ile	His	Gly 2110	Pro	Thr	Ser	Leu	His 2115	
ggg	gga	aga	gtt	acc	agt	tat	ggg	gat	cat	cgt	atc	ggg	atg	atg	tta	6667
Gly	Gly	Arg	Val	Thr	Ser	Tyr	Gly	Asp	His	Arg	Ile	Gly	Met	Met	Leu	
				2120				2125					2130			
caa	att	gct	gca	tta	ctt	gta	aaa	gaa	ggc	act	gtt	gaa	tta	gat	aag	6715
Gln	Ile	Ala	Ala	Leu	Leu	Val	Lys	Glu	Gly	Thr	Val	Glu	Leu	Asp	Lys	
			2135					2140					2145			
gct	gaa	gca	gtt	tca	gtt	tct	tat	cca	gca	ttt	ttt	gac	gac	tta	gaa	6763
Ala	Glu	Ala	Val	Ser	Val	Ser	Tyr	Pro	Ala	Phe	Phe	Asp	Asp	Leu	Glu	
			2150				2155					2160				
cgt	tta	agt	tgt	taa	cgaaggagga	taacga	acc	atg	gaa	agc	att	gtt	tta			6815
Arg	Leu	Ser	Cys	*				Thr	Met	Glu	Ser	Ile	Val	Leu		
	2165							2170								
att	ggg	ttc	atg	ggg	gcg	ggg	aaa	aca	act	atc	ggc	caa	agt	ttg	gcc	6863
Ile	Gly	Phe	Met	Gly	Ala	Gly	Lys	Thr	Thr	Ile	Gly	Gln	Ser	Leu	Ala	
2175					2180				2185					2190		
aat	aaa	ctg	aag	atg	cct	cat	ctt	gat	tta	gat	aca	gcg	tta	att	gaa	6911
Asn	Lys	Leu	Lys	Met	Pro	His	Leu	Asp	Leu	Asp	Thr	Ala	Leu	Ile	Glu	
				2195				2200					2205			
aaa	ata	gga	cgc	tca	att	cct	gac	tat	ttc	gaa	aaa	tat	ggg	gaa	gca	6959
Lys	Ile	Gly	Arg	Ser	Ile	Pro	Asp	Tyr	Phe	Glu	Lys	Tyr	Gly	Glu	Ala	
			2210				2215					2220				
gct	ttc	cga	gaa	cag	gaa	acc	caa	ctt	tta	aag	gag	ctg	tca	aaa	aat	7007
Ala	Phe	Arg	Glu	Gln	Glu	Thr	Gln	Leu	Leu	Lys	Glu	Leu	Ser	Lys	Asn	
			2225				2230					2235				
aca	gcc	gtc	ctt	tca	act	ggg	ggc	ggg	att	gtt	gtc	gga	cca	gaa	aat	7055
Thr	Ala	Val	Leu	Ser	Thr	Gly	Gly	Gly	Ile	Val	Val	Gly	Pro	Glu	Asn	
	2240				2245					2250						
cgt	agc	tta	tta	aaa	tct	ttt	cag	caa	gtg	att	tat	tta	cat	gcg	aca	7103
Arg	Ser	Leu	Leu	Lys	Ser	Phe	Gln	Gln	Val	Ile	Tyr	Leu	His	Ala	Thr	
2255				2260					2265					2270		
cca	gaa	gag	ctg	tta	aaa	aga	atc	aca	gaa	gat	act	gaa	aac	caa	cgg	7151
Pro	Glu	Glu	Leu	Leu	Lys	Arg	Ile	Thr	Glu	Asp	Thr	Glu	Asn	Gln	Arg	
			2275					2280					2285			
ccc	tta	gct	ata	gaa	cgt	tct	tca	aaa	gaa	atc	att	act	ttg	ttt	gag	7199
Pro	Leu	Ala	Ile	Glu	Arg	Ser	Ser	Lys	Glu	Ile	Ile	Thr	Leu	Phe	Glu	
			2290				2295					2300				
tct	cgt	aaa	aat	ttt	tat	gaa	gaa	tgt	gcg	aag	atg	aca	att	gat	acg	7247
Ser	Arg	Lys	Asn	Phe	Tyr	Glu	Glu	Cys	Ala	Lys	Met	Thr	Ile	Asp	Thr	
	2305					2310					2315					
acc	aat	cgc	tcg	cca	gaa	gaa	att	atc	aat	gaa	att	ctg	caa	caa	tta	7295
Thr	Asn	Arg	Ser	Pro	Glu	Glu	Ile	Ile	Asn	Glu	Ile	Leu	Gln	Gln	Leu	
	2320				2325				2330							

aag gag tag agaaacg atg aaa gtt ggt tat tta ggt ccg att ggt tcc Lys Glu * Met Lys Val Gly Tyr Leu Gly Pro Ile Gly Ser 2335 2340 2345	7344
ttt acg tac agt gca acg ttg gct gct ttt cct gaa gct acg ttg atg Phe Thr Tyr Ser Ala Thr Leu Ala Ala Phe Pro Glu Ala Thr Leu Met 2350 2355 2360	7392
ccg tac gca tcg att cca gct tgc ttg aaa gca att gaa cag caa gaa Pro Tyr Ala Ser Ile Pro Ala Cys Leu Lys Ala Ile Glu Gln Gln Glu 2365 2370 2375	7440
gtg gca tgg agc att atc cca ata gaa aac acg att gaa gga act gtt Val Ala Trp Ser Ile Ile Pro Ile Glu Asn Thr Ile Glu Gly Thr Val 2380 2385 2390 2395	7488
aac gca tcg ata gat tat ttg tat cat caa gcg cag tta cct gtc caa Asn Ala Ser Ile Asp Tyr Leu Tyr His Gln Ala Gln Leu Pro Val Gln 2400 2405 2410	7536
gca gag tta gtt tta ccg att caa caa caa tta atg gtg gca aaa gag Ala Glu Leu Val Leu Pro Ile Gln Gln Gln Leu Met Val Ala Lys Glu 2415 2420 2425	7584
aat caa gcg atc tgg caa caa agt cag aaa att tta tca cat ccg caa Asn Gln Ala Ile Trp Gln Gln Ser Gln Lys Ile Leu Ser His Pro Gln 2430 2435 2440	7632
gca tta gct caa tcg cag atg ttt cta gag aaa aac ttt cca gaa gcg Ala Leu Ala Gln Ser Gln Met Phe Leu Glu Lys Asn Phe Pro Glu Ala 2445 2450 2455	7680
att tta gaa gca aca cct tca aca gct tac gcc gcc aaa tac att gca Ile Leu Glu Ala Thr Pro Ser Thr Ala Tyr Ala Ala Lys Tyr Ile Ala 2460 2465 2470 2475	7728
gaa cat cca gaa tta cct ttt gca gct att gca cca aaa ctt tct gcg Glu His Pro Glu Leu Pro Phe Ala Ala Ile Ala Pro Lys Leu Ser Ala 2480 2485 2490	7776
gaa atg tat gat ttg acc att gtt gaa aaa aat ata caa gat tta tcg Glu Met Tyr Asp Leu Thr Ile Val Glu Lys Asn Ile Gln Asp Leu Ser 2495 2500 2505	7824
gta aat caa acc cga ttt tgg gtt ctt ggt tct gaa aat tta gcg att Val Asn Gln Thr Arg Phe Trp Val Leu Gly Ser Glu Asn Leu Ala Ile 2510 2515 2520	7872
tct ttc ccg cta tct gag aaa aaa ata aca ctg gcg att acg atg cca Ser Phe Pro Leu Ser Glu Lys Lys Ile Thr Leu Ala Ile Thr Met Pro 2525 2530 2535	7920
agt aat gtt cct ggc tct tta cac aaa gta tta agc gtg ttt agt tgg Ser Asn Val Pro Gly Ser Leu His Lys Val Leu Ser Val Phe Ser Trp 2540 2545 2550 2555	7968
cga ggg att aat ctt agc aaa ata gaa tcg cgg ccg ttg aaa aca aag Arg Gly Ile Asn Leu Ser Lys Ile Glu Ser Arg Pro Leu Lys Thr Lys 2560 2565 2570	8016

cta gga gag tac ttc ttt tta atg gac tta gtg aaa gat caa cca gaa 8064
 Leu Gly Glu Tyr Phe Phe Leu Met Asp Leu Val Lys Asp Gln Pro Glu
 2575 2580 2585

aaa tta att gaa gca gcc tta aca gaa ctg gaa ctc att ggt gca gaa 8112
 Lys Leu Ile Glu Ala Ala Leu Thr Glu Leu Glu Leu Ile Gly Ala Glu
 2590 2595 2600

ata aaa att tta ggg gat tac ccg atc tat gtt ttg tcc aca ctt taa 8160
 Ile Lys Ile Leu Gly Asp Tyr Pro Ile Tyr Val Leu Ser Thr Leu *
 2605 2610 2615

agagttaaaa atgaaaatga agcttactta ttagataaaag tgagtttcat tttttattaa 8220
 attacatatt tgtaatatga atttcctgtg aaatgaggta tcctaagaaa ggtgataaaa 8280
 cacagaggta aaggagtgc acgatgagtc gtgtagatcg ttataaacat attcatgaaa 8340
 tcttttc 8347

<210> 32
 <211> 867
 <212> DNA
 <213> Enterococcus faecalis

<400> 32
 atgaaagaaa taactggagc cactcgttta gctgggctat tcgcgaaacc cagccaacac 60
 agtattttcac cgttgattca taatacagca tttcaaaatt taggagttga tgctcggat 120
 ctggcgtttg acgttggaca agagacattg ccacaagcaa ttgaagcgat tcgaacgttt 180
 cacatgttag gggccaactt atcaatgccc aataaagtgg cggctgtaag ttatatggat 240
 gaactaagtc ctaccgctca actggttggc gcaattaata cgattgtcaa caaagatgga 300
 aaactttacg gagacagcac ggatggtagt ggttttatgt ggagtttgaa agagaaaaag 360
 gttgacgttt ttcagaataa aatgaccatc ttaggaacag gtggtgcagc cttatcaatc 420
 attgcccaag ctgctttaga tggcgtgaaa gaaatcgccg tttacaacag gaaaagcgcg 480
 ggctttaacg acagtcaaaa aaaactggca aatttctactg aacgaaccaa ctgtgtaatt 540
 catttaaacg atttagcgga tactgaaaaa ctagcaaaaag atgttgctga aagcgtcttg 600
 ttagttaatg caacgagtgt gggtatgcat ccacatgcgc atagtagtcc tatagaaaat 660
 tatgcaatga ttcaaccgaa gttatttgtg tatgatgcta tttataatcc cagagaaaaca 720
 cagttattaa aagaagcccg tttacgtggt gcagaaacaa gcaacggctt ggacatgcta 780
 ctttatcaag gcgctgctgc ttttgaacaa tggacaggac aaaaaatgcc tgtatcagtc 840
 gtaaaacgta aaattgaaaa tagataa 867

<210> 33
 <211> 1026
 <212> DNA
 <213> Enterococcus faecalis

<400> 33
 atgatcgtaa ttatgaaaga aaatgcaacc gaaaagcaaa tgaaacaagt cattgattta 60
 gtaacaggtg caggcttaac tactcaaaca agtcaagata atggaaaaac agtgataggc 120
 ttgattggtg atacagaaaa attagttgaa gcagagttaa cagcattaga aggcgtggag 180
 aaaagtgtcc gcatttcgtt gtcttcaaaa ctaacgagtc gtttatttca tccagagaat 240
 acagtgggtg atgtgaacgg tgttaaaatc ggtgacggca gtatgaccat gatggcgggc 300
 ccttgttcaa tcgaaagctt agatcagatt cgcgaatgtg cgcgaattgc taaagctgga 360
 ggtgcaacaa ttttacgagg tgggtgcattc aaacctagaa cgtcgccata cgctttccaa 420
 ggactagaag aagaaggact aaaatacatt cgccaagcgg ctgatgaatt agatatgcaa 480
 gtcattacag aagtgatgga tgaagcgaat ttagaacttg tcgcaaaata cagtgcatt 540
 ttacaaatcg gtgcgcgcaa catgcaaaat ttcaagttat tacaagcggg tggtaaaact 600
 ggaaaaaccta ttggcttaaa acgcgggatt gctggtacga ttgatgaatg gctaaaacgca 660
 gctgaatata ttgctgcgca aggaatttc aatgtgatct tcattgaacg tgggattcgt 720
 acgtacgaaa ccgctacgcg caatacactt gatttaagtgc cgggtgccttt aattaaaaaa 780

ttaagtcatt	ttccaattat	tgttgatccg	agtcatggtg	ttggtatctg	ggatttagta	840
ccgccaatgg	cccgagcagg	tgttgcttca	ggtgcgagcg	gcttgattgt	agaaattcat	900
ccagatccag	cgaatgcgtg	gtcagatggg	ccacaatcct	tgaatgaaaa	aacttaccta	960
cgtatgatga	aagaagtcca	tatcatcgaa	aaagcaatga	aagaaattaa	tgctttagaa	1020
gattag						1026

<210> 34
 <211> 1077
 <212> DNA
 <213> Enterococcus faecalis

<400> 34						
atgaaattaa	ccgtaacggt	acctacacat	tcatatgatt	taaccatcga	aacaggtgcc	60
ttagataaaa	ttggcacctg	ggtacgtagc	ctgtggcagc	cacaacgggt	agcgattatt	120
accgatgaaa	cggatgaata	attatatggc	gcagctgttg	agaaagaatt	gcaagctgct	180
ggttttgaaa	catcattgat	tgctgtagcg	gcaggatgaac	aaagtaagag	cctcgaaata	240
gctcaactgc	tttatgattt	tttagcggaa	cagcaattga	ctcgaagtga	tggtctaatt	300
gcttttagtg	gaggcggtgt	gggagatcta	gctggatttg	tcgcttcaac	ctatatgcgc	360
ggtattcact	ttttgcaagt	accaacaacc	ttactggcac	aagtagatag	tagcattgga	420
ggtaaaacag	cgggttaatac	taaaaaagcc	aaaaatcttg	tcggtacttt	tgcccaacca	480
gatgggggtt	taattgatcc	taatacactt	aaaacattag	aacctagacg	tgtgcgtgaa	540
ggaattgcag	aaattgtaaa	atcagcagct	atcgctgatg	ttgaattgtg	gcaccgttta	600
tcctcttttg	aaaatgaaca	agatttagtg	gcacatgcag	aagaaattat	cacggcctgt	660
tgcaagatta	aacgtgatgt	cgtcgaagaa	gatgaattag	atttgggctt	acgtttgatt	720
ctgaattttg	ggcatatcat	cggccacgca	ttagaaaata	cagctgggta	cgggggtgatt	780
gctcacggtg	aaggcggttc	tttaggaatg	attcaataaa	ctcaagtcgc	agaacaacaa	840
gggctttccc	cacttgggac	tacccaagag	ttgggtacca	tgctagaaaa	gttccattta	900
ccagtaacca	cagatcggtg	gtcagaagaa	cgtctctatc	aagcaattac	acatgataaa	960
aaaacacgtg	ggggacagat	taaaatcatt	gtcttagaaa	aaattggtca	agcgaaaatt	1020
gtctctttac	caacggaaga	aattcgagca	tttttaaaca	gagaaggagg	aatttaa	1077

<210> 35
 <211> 1167
 <212> DNA
 <213> Enterococcus faecalis

<400> 35						
atgcgcttta	ttacagcagg	cgaatcacat	ggacctgaat	taactgctat	tattgaaggc	60
ttaccagccg	gcttgccctt	aagtagcgaa	gagattaacc	gagaattagc	aagacgtcaa	120
ggcggttacg	gtcgtggggg	acggatgaaa	attgaaaaag	accaagtacg	tattacttcg	180
ggtattccgg	atggtaaaac	acttggctca	ccagtaacgt	tgattgtcga	aaacaaagac	240
tggaataaatt	ggacctccgt	gatgtcagta	gagccagttc	ctgaaaaaca	aaagaaaatc	300
cgccgcgtca	gcaaacaccg	tccaggacat	gctgatttag	tcggtggcat	gaaatatcaa	360
catgatgatt	tacggaatgt	tttagaacgg	tcttcggcac	gagaaacaac	gatgcgtgtg	420
gcgattggtg	cggttgctaa	aaaactctta	gctgaactgg	atatccaagt	cgctgggcat	480
gtcgcgggtat	taggtgggat	tgaagctacg	atccctgaaa	atttaacgat	tcgtgaaatt	540
caagaacgat	ctgaacaatc	tgccgttcgc	gtattagatc	cttccgtaga	agaaaaaatg	600
aaagaactaa	ttgaccaaac	caagaaaaat	ggcgatacaa	ttggtggggg	agtagaagta	660
cttgtgggtg	gcgttccagc	tggcttaggt	agctatgtcc	aatgggatcg	taaactagat	720
gccaaaattg	cgcaagcagt	tgtatgcata	aacgctttta	cagggtgctga	gtttggcatt	780
ggatttgaaa	tgccacaacg	ccctggtagt	caactgatgg	acgagattgt	ttgggacgaa	840
agtactggtt	ataccagaac	ttccaacaat	ttaggcggtt	ttgaaggagg	aatgaccaac	900
ggaatgccaa	tcatcggtcg	tggtgtcatg	aaacctattc	caacccttta	taaaccatta	960
caaagcggtg	atattgatac	aaaagagcct	tataaggcca	gtgttgagcg	ctctgatagc	1020
acggcggtac	cggccgctag	cgttggtttg	gaagccggtg	ttgcaacgga	agtagcaaac	1080
gctatgctcg	aaaaatttga	tagtgactca	tttgaacaaa	tgaaagaagc	agtgaacagt	1140
tatcgtctat	atactcaaaa	cttttaa				1167

<210> 36

<211> 1095

<212> DNA

<213> Enterococcus faecalis

<400> 36

```
atgaagaaac gtattttaat cgtaggatta gggctaatac ggagttcact ggctttgtgt 60
atcaaaaaag ggcattccaaa cagtgaagatt atcgggtttcg ataatacaagc ggaggcaact 120
gaatttgcta agaaaacggg tctaattgat gagatagctg aatctttaac aagtggggca 180
agacgagcag agattatatt tctttgttcc ccagttaaag caactttagt acaactagaa 240
gaattaaacc aattatcact agaaactgct ctgatcacag atgtgggtag taccaagggtg 300
gaaattaatc agtttagcaac aaagcttaac atgaaaaatt ttattggtgg tcatccaatg 360
gctggttcac ataaatccgg cgtaacagcc gctgatgaac gtttgtttga aaatgcctac 420
tatattttta ccgatgacca tggcgaaaaa acaaaacaga ttccaggagt acaaacgtta 480
ctaaaaggaa cgcattgcga gtttattacg atgcctgcac aggaacatga tgaaattact 540
ggtgctctaa gtcacttgcc acatattggt gccgcagcgt tagtgaacga aagtcagcaa 600
ctgaatacca cttaccctag agcgcagcag ctagcggctg gaggattcag agatattact 660
cgaattgctt cctctgatgc aacgatgtgg acggatattt tattaagcaa tcgcttagta 720
ttattggact tactagaaaa ttggcaaaaa gagatgacta ctgtttgcca atggttaaca 780
gaaaaaaatg ccccgctat tcgtaatttt tttgataagg ccaaagaaac acgtgctcaa 840
ttgcctattc ataaagaagg cgcaatccca gctttctatg atctgtttgt tgatgtacca 900
gatcaaccag gaatcattgc tgaaattacg caaattttag gcgaagcgga cctttctctt 960
acaaatatta aaattttaga aacgagagaa gaaatctatg ggattcttca attgtctttt 1020
aaaaatcaac cagactgcca agctgcaaaa caaattttat ctaaaaaaac gaactatacg 1080
tgttacgaaa aataa 1095
```

<210> 37

<211> 1287

<212> DNA

<213> Enterococcus faecalis

<400> 37

```
atgaggggtgc aactacgtac aaatgtgaag catttacaag ggactctgat ggttcctagc 60
gacaaatcga tttcccatag aagtattatg tttggagcga tttcttctgg aaaaacgacg 120
attacaaatt ttctaagagg cgaagattgt ttaagtacct tagcggcggt tcgttcttta 180
ggtgtgaaca ttgaagatga cgggacgaca atcaccgttg aggggcgagg atttgcaggc 240
ttaaaaaagg cgaagaatac aattgatgtt ggaaattcag ggacaacaat tcgtctgatg 300
ctgggcattt tagctggctg tccctttgaa acgcgcctag ctggtgatgc gtctattgcc 360
aaacgaccaa tgaatcgtgt aatgcttcct ttaaaccaaa tgggagcgga atgtcaaggg 420
gttcagcaaa cggagtttcc gccaatctct attcgcggga ctcaaaattt gcaaccgatt 480
gactacacaa tgcctgttgc aagtgtctaa gttaaatecg ctattttatt cgccgctttg 540
caagccgagg gcacttctgt agtggttgag aaagaaaaga cacgtgatca tacagaagag 600
atgattcgac aatttggtgg gacacttgaa gtagacggta aaaaaattat gttaactgga 660
ccgcaacaat taacagggtc aaatgtggta gttcctgggt atatctcttc tgcagcttcc 720
tttttagttg cgggtttagt agtcccagat agcgagatac ttctgaaaaa tgttggttta 780
aatcaaagcg ggacaggtat ttttagatgtg attaaaaaca tgggcgggtc cgtcactatt 840
ttaaatgaag atgaggccaa tcattctggc gatttacttg taaaaacgag tcaattaaca 900
gctacagaga ttggtggcgc tattatccca cgtttaattg atgagttacc gattattgct 960
ttgtagtcta ctcaggctac tggcacgaca atcattcgag atgcagaaga attgaaagtc 1020
aaagaaccca atcggattga tgcagtgcg aaagaattaa caattttagg cgccgacatc 1080
acgcctactg atgatggctt aattatacat ggaccaactt ctttacatgg tggagagatt 1140
accagttatg gggatcatcg tatcgggatg atgttataaa ttgctgcatt acttgtaaaa 1200
gaaggcactg ttgaattaga taaggctgaa gcagtttcag tttcttatcc agcatttttt 1260
gacgacttag aacgtttaag ttgttaa 1287
```

<210> 38

<211> 507

<212> DNA

<213> Enterococcus faecalis

<400> 38
atggaaagca ttgttttaaat tggtttcatg ggtgcgggta aaacaactat cggccaaagt 60
ttggccaata aactgaagat gcctcatctt gatttagata cagcgttaat tgaaaaaata 120
ggacgctcaa ttcctgacta tttcgaaaaa tatggtgaag cagctttccg agaacaggaa 180
acccaacttt taaaggagct gtcaaaaaat acagccgtcc tttcaactgg gggcgggatt 240
gttgtcggac cagaaaatcg tagcttatta aaatcttttc agcaagtgat ttatttacat 300
gcgacaccag aagagctgtt aaaaagaatc acagaagata ctgaaaacca acggccctta 360
gctatagaac gttcttcaaa agaaatcatt actttgtttg agtctcgtaa aaatttttat 420
gaagaatgtg cgaagatgac aattgatacg accaatcgct cgccagaaga aattatcaat 480
gaaattctgc aacaattaaa ggagtag 507

<210> 39
<211> 849
<212> DNA
<213> Enterococcus faecalis

<400> 39
atgaaagtgt gttatttagg tccgattggt tcctttacgt acagtgaac gttggctgct 60
tttctgaag ctacgttgat gccgtacgca tcgattccag cttgcttgaa agcaattgaa 120
cagcaagaag tggcatggag cattatccca atagaaaaca cgattgaagg aactgttaac 180
gcatcgatag attatttgta tcatcaagcg cagttacctg tccaagcaga gttagtttta 240
ccgattcaac aacaattaat ggtggcaaaa gagaatcaag cgatctggca acaaagtcag 300
aaaaatttat cacatccgca agcattagct caatcgcaga tgtttctaga gaaaaacttt 360
ccagaagcga ttttagaagc aacaccttca acagcttacg ccgccaata cattgcagaa 420
catccagaat taccttttgc agctattgca ccaaaaacttt ctgcggaaat gtatgatttg 480
accattgttg aaaaaaatat acaagattta tcggtaaatc aaacccgatt ttgggttctt 540
ggttctgaaa atttagcgat ttctttcccg ctatctgaga aaaaaataac actggcgatt 600
acgatgccaa gtaatgttcc tggctcttta cacaaagat taagcgtgtt tagttggcga 660
gggattaatc ttagcaaaat agaatcgcgg ccgttgaaaa caaagctagg agagtacttc 720
tttttaatgg acttagtgaa agatcaacca gaaaaattaa ttgaagcagc cttaacagaa 780
ctggaactca ttggtgcaga aataaaaatt ttaggggatt acccgatcta tgttttgtcc 840
acacttttaa 849

<210> 40
<211> 288
<212> PRT
<213> Enterococcus faecalis

<400> 40
Met Lys Glu Ile Thr Gly Ala Thr Arg Leu Ala Gly Leu Phe Ala Lys
1 5 10 15
Pro Ser Gln His Ser Ile Ser Pro Leu Ile His Asn Thr Ala Phe Gln
20 25 30
Asn Leu Gly Val Asp Ala Arg Tyr Leu Ala Phe Asp Val Gly Gln Glu
35 40 45
Thr Leu Pro Gln Ala Ile Glu Ala Ile Arg Thr Phe His Met Leu Gly
50 55 60
Ala Asn Leu Ser Met Pro Asn Lys Val Ala Ala Val Ser Tyr Met Asp
65 70 75 80
Glu Leu Ser Pro Thr Ala Gln Leu Val Gly Ala Ile Asn Thr Ile Val
85 90 95
Asn Lys Asp Gly Lys Leu Tyr Gly Asp Ser Thr Asp Gly Thr Gly Phe
100 105 110
Met Trp Ser Leu Lys Glu Lys Lys Val Asp Val Phe Gln Asn Lys Met
115 120 125
Thr Ile Leu Gly Thr Gly Gly Ala Ala Leu Ser Ile Ile Ala Gln Ala
130 135 140
Ala Leu Asp Gly Val Lys Glu Ile Ala Val Tyr Asn Arg Lys Ser Ala
145 150 155 160

Gly	Phe	Asn	Asp	Ser	Gln	Lys	Lys	Leu	Ala	Asn	Phe	Thr	Glu	Arg	Thr
			165					170						175	
Asn	Cys	Val	Ile	His	Leu	Asn	Asp	Leu	Ala	Asp	Thr	Glu	Lys	Leu	Ala
			180					185						190	
Lys	Asp	Val	Ala	Glu	Ser	Val	Leu	Val	Asn	Ala	Thr	Ser	Val	Gly	
			195				200					205			
Met	His	Pro	His	Ala	His	Ser	Ser	Pro	Ile	Glu	Asn	Tyr	Ala	Met	Ile
	210					215					220				
Gln	Pro	Lys	Leu	Phe	Val	Tyr	Asp	Ala	Ile	Tyr	Asn	Pro	Arg	Glu	Thr
225					230					235					240
Gln	Leu	Leu	Lys	Glu	Ala	Arg	Leu	Arg	Gly	Ala	Glu	Thr	Ser	Asn	Gly
				245					250					255	
Leu	Asp	Met	Leu	Leu	Tyr	Gln	Gly	Ala	Ala	Phe	Glu	Gln	Trp	Thr	
			260					265					270		
Gly	Gln	Lys	Met	Pro	Val	Ser	Val	Val	Lys	Arg	Lys	Ile	Glu	Asn	Arg
		275					280						285		

<210> 41
 <211> 341
 <212> PRT
 <213> Enterococcus faecalis

<400> 41

Met	Ile	Val	Ile	Met	Lys	Glu	Asn	Ala	Thr	Glu	Lys	Gln	Met	Lys	Gln
1				5					10					15	
Val	Ile	Asp	Leu	Val	Thr	Gly	Ala	Gly	Leu	Thr	Thr	Gln	Thr	Ser	Gln
			20					25					30		
Asp	Asn	Gly	Lys	Thr	Val	Ile	Gly	Leu	Ile	Gly	Asp	Thr	Glu	Lys	Leu
		35					40					45			
Val	Glu	Ala	Glu	Leu	Thr	Ala	Leu	Glu	Gly	Val	Glu	Lys	Ser	Val	Arg
	50					55				60					
Ile	Ser	Leu	Ser	Tyr	Lys	Leu	Thr	Ser	Arg	Leu	Phe	His	Pro	Glu	Asn
65					70					75					80
Thr	Val	Val	Asp	Val	Asn	Gly	Val	Lys	Ile	Gly	Asp	Gly	Ser	Met	Thr
				85					90					95	
Met	Met	Ala	Gly	Pro	Cys	Ser	Ile	Glu	Ser	Leu	Asp	Gln	Ile	Arg	Glu
		100						105					110		
Cys	Ala	Arg	Ile	Ala	Lys	Ala	Gly	Gly	Ala	Thr	Ile	Leu	Arg	Gly	Gly
		115					120					125			
Ala	Phe	Lys	Pro	Arg	Thr	Ser	Pro	Tyr	Ala	Phe	Gln	Gly	Leu	Glu	Glu
	130					135					140				
Glu	Gly	Leu	Lys	Tyr	Ile	Arg	Gln	Ala	Ala	Asp	Glu	Leu	Asp	Met	Gln
145					150					155					160
Val	Ile	Thr	Glu	Val	Met	Asp	Glu	Ala	Asn	Leu	Glu	Leu	Val	Ala	Lys
				165					170					175	
Tyr	Ser	Asp	Ile	Leu	Gln	Ile	Gly	Ala	Arg	Asn	Met	Gln	Asn	Phe	Lys
		180						185					190		
Leu	Leu	Gln	Ala	Val	Gly	Lys	Thr	Gly	Lys	Pro	Ile	Gly	Leu	Lys	Arg
		195					200					205			
Gly	Ile	Ala	Gly	Thr	Ile	Asp	Glu	Trp	Leu	Asn	Ala	Ala	Glu	Tyr	Ile
	210					215					220				
Ala	Ala	Gln	Gly	Asn	Phe	Asn	Val	Ile	Phe	Ile	Glu	Arg	Gly	Ile	Arg
225					230					235					240
Thr	Tyr	Glu	Thr	Ala	Thr	Arg	Asn	Thr	Leu	Asp	Leu	Ser	Ala	Val	Pro
				245					250					255	
Leu	Ile	Lys	Lys	Leu	Ser	His	Phe	Pro	Ile	Ile	Val	Asp	Pro	Ser	His
			260					265					270		
Gly	Val	Gly	Ile	Trp	Asp	Leu	Val	Pro	Pro	Met	Ala	Arg	Ala	Gly	Val

	275		280		285
Ala	Ser Gly Ala Asp Gly Leu Ile Val Glu Ile His Pro Asp Pro Ala				
	290		295		300
Asn	Ala Trp Ser Asp Gly Pro Gln Ser Leu Asn Glu Lys Thr Tyr Leu				
	305		310		315
Arg	Met Met Lys Glu Val His Ile Ile Glu Lys Ala Met Lys Glu Ile				
			325		330
Asn	Ala Leu Glu Asp				335
	340				

<210> 42
 <211> 358
 <212> PRT
 <213> Enterococcus faecalis

<400> 42

Met	Lys	Leu	Thr	Val	Thr	Leu	Pro	Thr	His	Ser	Tyr	Asp	Leu	Thr	Ile
1				5					10					15	
Glu	Thr	Gly	Ala	Leu	Asp	Lys	Ile	Gly	Thr	Trp	Val	Arg	Ser	Leu	Trp
			20					25					30		
Gln	Pro	Gln	Arg	Val	Ala	Ile	Ile	Thr	Asp	Glu	Thr	Val	Asn	Lys	Leu
		35					40					45			
Tyr	Gly	Ala	Ala	Val	Glu	Lys	Glu	Leu	Gln	Ala	Ala	Gly	Phe	Glu	Thr
	50					55					60				
Ser	Leu	Ile	Ala	Val	Ala	Ala	Gly	Glu	Gln	Ser	Lys	Ser	Leu	Glu	Ile
	65				70					75				80	
Ala	Gln	Leu	Leu	Tyr	Asp	Phe	Leu	Ala	Glu	Gln	Gln	Leu	Thr	Arg	Ser
			85						90					95	
Asp	Gly	Leu	Ile	Ala	Leu	Gly	Gly	Gly	Val	Val	Gly	Asp	Leu	Ala	Gly
		100						105					110		
Phe	Val	Ala	Ser	Thr	Tyr	Met	Arg	Gly	Ile	His	Phe	Leu	Gln	Val	Pro
		115					120					125			
Thr	Thr	Leu	Leu	Ala	Gln	Val	Asp	Ser	Ser	Ile	Gly	Gly	Lys	Thr	Ala
	130					135					140				
Val	Asn	Thr	Lys	Lys	Ala	Lys	Asn	Leu	Val	Gly	Thr	Phe	Ala	Gln	Pro
	145				150					155				160	
Asp	Gly	Val	Leu	Ile	Asp	Pro	Asn	Thr	Leu	Lys	Thr	Leu	Glu	Pro	Arg
			165						170					175	
Arg	Val	Arg	Glu	Gly	Ile	Ala	Glu	Ile	Val	Lys	Ser	Ala	Ala	Ile	Ala
			180					185					190		
Asp	Val	Glu	Leu	Trp	His	Arg	Leu	Ser	Ser	Leu	Glu	Asn	Glu	Gln	Asp
	195						200					205			
Leu	Val	Ala	His	Ala	Glu	Glu	Ile	Ile	Thr	Ala	Cys	Cys	Lys	Ile	Lys
	210					215					220				
Arg	Asp	Val	Val	Glu	Glu	Asp	Glu	Leu	Asp	Leu	Gly	Leu	Arg	Leu	Ile
	225					230			235					240	
Leu	Asn	Phe	Gly	His	Thr	Ile	Gly	His	Ala	Leu	Glu	Asn	Thr	Ala	Gly
			245						250					255	
Tyr	Gly	Val	Ile	Ala	His	Gly	Glu	Gly	Val	Ser	Leu	Gly	Met	Ile	Gln
		260						265					270		
Ile	Thr	Gln	Val	Ala	Glu	Gln	Gln	Gly	Leu	Ser	Pro	Leu	Gly	Thr	Thr
		275					280					285			
Gln	Glu	Leu	Val	Thr	Met	Leu	Glu	Lys	Phe	His	Leu	Pro	Val	Thr	Thr
	290					295					300				
Asp	Arg	Trp	Ser	Glu	Glu	Arg	Leu	Tyr	Gln	Ala	Ile	Thr	His	Asp	Lys
	305				310					315				320	
Lys	Thr	Arg	Gly	Gly	Gln	Ile	Lys	Ile	Ile	Val	Leu	Glu	Lys	Ile	Gly
			325						330					335	

Gln Ala Lys Ile Val Ser Leu Pro Thr Glu Glu Ile Arg Ala Phe Leu
 340 345 350
 Asn Arg Glu Gly Gly Ile
 355

<210> 43
 <211> 388
 <212> PRT
 <213> Enterococcus faecalis

<400> 43
 Met Arg Phe Ile Thr Ala Gly Glu Ser His Gly Pro Glu Leu Thr Ala
 1 5 10 15
 Ile Ile Glu Gly Leu Pro Ala Gly Leu Pro Leu Ser Ser Glu Glu Ile
 20 25 30
 Asn Arg Glu Leu Ala Arg Arg Gln Gly Gly Tyr Gly Arg Gly Gly Arg
 35 40 45
 Met Lys Ile Glu Lys Asp Gln Val Arg Ile Thr Ser Gly Ile Arg His
 50 55 60
 Gly Lys Thr Leu Gly Ser Pro Val Thr Leu Ile Val Glu Asn Lys Asp
 65 70 75 80
 Trp Lys Asn Trp Thr Ser Val Met Ser Val Glu Pro Val Pro Glu Lys
 85 90 95
 Gln Lys Lys Ile Arg Arg Val Ser Lys Pro Arg Pro Gly His Ala Asp
 100 105 110
 Leu Val Gly Gly Met Lys Tyr Gln His Asp Asp Leu Arg Asn Val Leu
 115 120 125
 Glu Arg Ser Ser Ala Arg Glu Thr Thr Met Arg Val Ala Ile Gly Ala
 130 135 140
 Val Ala Lys Lys Leu Leu Ala Glu Leu Asp Ile Gln Val Ala Gly His
 145 150 155 160
 Val Ala Val Leu Gly Gly Ile Glu Ala Thr Ile Pro Glu Asn Leu Thr
 165 170 175
 Ile Arg Glu Ile Gln Glu Arg Ser Glu Gln Ser Ala Val Arg Val Leu
 180 185 190
 Asp Pro Ser Val Glu Glu Lys Met Lys Glu Leu Ile Asp Gln Thr Lys
 195 200 205
 Lys Asn Gly Asp Thr Ile Gly Gly Val Val Glu Val Leu Val Gly Gly
 210 215 220
 Val Pro Ala Gly Leu Gly Ser Tyr Val Gln Trp Asp Arg Lys Leu Asp
 225 230 235 240
 Ala Lys Ile Ala Gln Ala Val Val Ser Ile Asn Ala Phe Thr Gly Ala
 245 250 255
 Glu Phe Gly Ile Gly Phe Glu Met Ala Gln Arg Pro Gly Ser Gln Leu
 260 265 270
 Met Asp Glu Ile Val Trp Asp Glu Ser Thr Gly Tyr Thr Arg Thr Ser
 275 280 285
 Asn Asn Leu Gly Gly Phe Glu Gly Met Thr Asn Gly Met Pro Ile
 290 295 300
 Ile Val Arg Gly Val Met Lys Pro Ile Pro Thr Leu Tyr Lys Pro Leu
 305 310 315 320
 Gln Ser Val Asn Ile Asp Thr Lys Glu Pro Tyr Lys Ala Ser Val Glu
 325 330 335
 Arg Ser Asp Ser Thr Ala Val Pro Ala Ala Ser Val Val Cys Glu Ala
 340 345 350
 Val Val Ala Thr Glu Val Ala Lys Ala Met Leu Glu Lys Phe Asp Ser
 355 360 365
 Asp Ser Phe Glu Gln Met Lys Glu Ala Val Lys Arg Tyr Arg Leu Tyr

370
Thr Gln Asn Phe
385

375

380

<210> 44
<211> 364
<212> PRT
<213> Enterococcus faecalis

<400> 44
Met Lys Lys Arg Ile Leu Ile Val Gly Leu Gly Leu Ile Gly Ser Ser
1 5 10 15
Leu Ala Leu Cys Ile Lys Lys Gly His Pro Asn Ser Glu Ile Ile Gly
20 25 30
Phe Asp Asn Gln Ala Glu Ala Thr Glu Phe Ala Lys Lys Thr Gly Leu
35 40 45
Ile Asp Glu Ile Ala Glu Ser Leu Thr Ser Gly Ala Arg Arg Ala Glu
50 55 60
Ile Ile Phe Leu Cys Ser Pro Val Lys Ala Thr Leu Val Gln Leu Glu
65 70 75 80
Glu Leu Asn Gln Leu Ser Leu Glu Thr Ala Leu Ile Thr Asp Val Gly
85 90 95
Ser Thr Lys Val Glu Ile Asn Gln Leu Ala Thr Lys Leu Asn Met Lys
100 105 110
Asn Phe Ile Gly Gly His Pro Met Ala Gly Ser His Lys Ser Gly Val
115 120 125
Thr Ala Ala Asp Glu Arg Leu Phe Glu Asn Ala Tyr Tyr Ile Phe Thr
130 135 140
Asp Asp His Gly Glu Lys Asn Lys Gln Ile Gln Glu Leu Gln Thr Leu
145 150 155 160
Leu Lys Gly Thr His Ala Lys Phe Ile Thr Met Pro Ala Gln Glu His
165 170 175
Asp Glu Ile Thr Gly Ala Leu Ser His Leu Pro His Ile Val Ala Ala
180 185 190
Ala Leu Val Asn Glu Ser Gln Gln Leu Asn Thr Thr Tyr Pro Arg Ala
195 200 205
Gln Gln Leu Ala Ala Gly Gly Phe Arg Asp Ile Thr Arg Ile Ala Ser
210 215 220
Ser Asp Ala Thr Met Trp Thr Asp Ile Leu Leu Ser Asn Arg Leu Val
225 230 235 240
Leu Leu Asp Leu Leu Glu Asn Trp Gln Lys Glu Met Thr Thr Val Cys
245 250 255
Gln Trp Leu Thr Glu Lys Asn Ala Pro Ala Ile Arg Asn Phe Phe Asp
260 265 270
Lys Ala Lys Glu Thr Arg Ala Gln Leu Pro Ile His Lys Glu Gly Ala
275 280 285
Ile Pro Ala Phe Tyr Asp Leu Phe Val Asp Val Pro Asp Gln Pro Gly
290 295 300
Ile Ile Ala Glu Ile Thr Gln Ile Leu Gly Glu Ala Asp Leu Ser Leu
305 310 315 320
Thr Asn Ile Lys Ile Leu Glu Thr Arg Glu Glu Ile Tyr Gly Ile Leu
325 330 335
Gln Leu Ser Phe Lys Asn Gln Pro Asp Cys Gln Ala Ala Lys Gln Ile
340 345 350
Leu Ser Lys Lys Thr Asn Tyr Thr Cys Tyr Glu Lys
355 360

<210> 45
 <211> 428
 <212> PRT
 <213> Enterococcus faecalis

<400> 45
 Met Arg Val Gln Leu Arg Thr Asn Val Lys His Leu Gln Gly Thr Leu
 1 5 10 15
 Met Val Pro Ser Asp Lys Ser Ile Ser His Arg Ser Ile Met Phe Gly
 20 25 30
 Ala Ile Ser Ser Gly Lys Thr Thr Ile Thr Asn Phe Leu Arg Gly Glu
 35 40 45
 Asp Cys Leu Ser Thr Leu Ala Phe Arg Ser Leu Gly Val Asn Ile
 50 55 60
 Glu Asp Asp Gly Thr Thr Ile Thr Val Glu Gly Arg Gly Phe Ala Gly
 65 70 75 80
 Leu Lys Lys Ala Lys Asn Thr Ile Asp Val Gly Asn Ser Gly Thr Thr
 85 90 95
 Ile Arg Leu Met Leu Gly Ile Leu Ala Gly Cys Pro Phe Glu Thr Arg
 100 105 110
 Leu Ala Gly Asp Ala Ser Ile Ala Lys Arg Pro Met Asn Arg Val Met
 115 120 125
 Leu Pro Leu Asn Gln Met Gly Ala Glu Cys Gln Gly Val Gln Gln Thr
 130 135 140
 Glu Phe Pro Pro Ile Ser Ile Arg Gly Thr Gln Asn Leu Gln Pro Ile
 145 150 155 160
 Asp Tyr Thr Met Pro Val Ala Ser Ala Gln Val Lys Ser Ala Ile Leu
 165 170 175
 Phe Ala Ala Leu Gln Ala Glu Gly Thr Ser Val Val Val Glu Lys Glu
 180 185 190
 Lys Thr Arg Asp His Thr Glu Glu Met Ile Arg Gln Phe Gly Gly Thr
 195 200 205
 Leu Glu Val Asp Gly Lys Lys Ile Met Leu Thr Gly Pro Gln Gln Leu
 210 215 220
 Thr Gly Gln Asn Val Val Val Pro Gly Asp Ile Ser Ser Ala Ala Phe
 225 230 235 240
 Phe Leu Val Ala Gly Leu Val Val Pro Asp Ser Glu Ile Leu Leu Lys
 245 250 255
 Asn Val Gly Leu Asn Gln Thr Arg Thr Gly Ile Leu Asp Val Ile Lys
 260 265 270
 Asn Met Gly Gly Ser Val Thr Ile Leu Asn Glu Asp Glu Ala Asn His
 275 280 285
 Ser Gly Asp Leu Leu Val Lys Thr Ser Gln Leu Thr Ala Thr Glu Ile
 290 295 300
 Gly Gly Ala Ile Ile Pro Arg Leu Ile Asp Glu Leu Pro Ile Ile Ala
 305 310 315 320
 Leu Leu Ala Thr Gln Ala Thr Gly Thr Thr Ile Ile Arg Asp Ala Glu
 325 330 335
 Glu Leu Lys Val Lys Glu Thr Asn Arg Ile Asp Ala Val Ala Lys Glu
 340 345 350
 Leu Thr Ile Leu Gly Ala Asp Ile Thr Pro Thr Asp Asp Gly Leu Ile
 355 360 365
 Ile His Gly Pro Thr Ser Leu His Gly Gly Arg Val Thr Ser Tyr Gly
 370 375 380
 Asp His Arg Ile Gly Met Met Leu Gln Ile Ala Ala Leu Leu Val Lys
 385 390 395 400
 Glu Gly Thr Val Glu Leu Asp Lys Ala Glu Ala Val Ser Val Ser Tyr
 405 410 415
 Pro Ala Phe Phe Asp Asp Leu Glu Arg Leu Ser Cys

<210> 46
 <211> 168
 <212> PRT
 <213> Enterococcus faecalis

<400> 46
 Met Glu Ser Ile Val Leu Ile Gly Phe Met Gly Ala Gly Lys Thr Thr
 1 5 10 15
 Ile Gly Gln Ser Leu Ala Asn Lys Leu Lys Met Pro His Leu Asp Leu
 20 25 30
 Asp Thr Ala Leu Ile Glu Lys Ile Gly Arg Ser Ile Pro Asp Tyr Phe
 35 40 45
 Glu Lys Tyr Gly Glu Ala Ala Phe Arg Glu Gln Glu Thr Gln Leu Leu
 50 55 60
 Lys Glu Leu Ser Lys Asn Thr Ala Val Leu Ser Thr Gly Gly Gly Ile
 65 70 75 80
 Val Val Gly Pro Glu Asn Arg Ser Leu Leu Lys Ser Phe Gln Gln Val
 85 90 95
 Ile Tyr Leu His Ala Thr Pro Glu Glu Leu Leu Lys Arg Ile Thr Glu
 100 105 110
 Asp Thr Glu Asn Gln Arg Pro Leu Ala Ile Glu Arg Ser Ser Lys Glu
 115 120 125
 Ile Ile Thr Leu Phe Glu Ser Arg Lys Asn Phe Tyr Glu Glu Cys Ala
 130 135 140
 Lys Met Thr Ile Asp Thr Thr Asn Arg Ser Pro Glu Glu Ile Ile Asn
 145 150 155 160
 Glu Ile Leu Gln Gln Leu Lys Glu
 165

<210> 47
 <211> 282
 <212> PRT
 <213> Enterococcus faecalis

<400> 47
 Met Lys Val Gly Tyr Leu Gly Pro Ile Gly Ser Phe Thr Tyr Ser Ala
 1 5 10 15
 Thr Leu Ala Ala Phe Pro Glu Ala Thr Leu Met Pro Tyr Ala Ser Ile
 20 25 30
 Pro Ala Cys Leu Lys Ala Ile Glu Gln Gln Glu Val Ala Trp Ser Ile
 35 40 45
 Ile Pro Ile Glu Asn Thr Ile Glu Gly Thr Val Asn Ala Ser Ile Asp
 50 55 60
 Tyr Leu Tyr His Gln Ala Gln Leu Pro Val Gln Ala Glu Leu Val Leu
 65 70 75 80
 Pro Ile Gln Gln Gln Leu Met Val Ala Lys Glu Asn Gln Ala Ile Trp
 85 90 95
 Gln Gln Ser Gln Lys Ile Leu Ser His Pro Gln Ala Leu Ala Gln Ser
 100 105 110
 Gln Met Phe Leu Glu Lys Asn Phe Pro Glu Ala Ile Leu Glu Ala Thr
 115 120 125
 Pro Ser Thr Ala Tyr Ala Ala Lys Tyr Ile Ala Glu His Pro Glu Leu
 130 135 140
 Pro Phe Ala Ala Ile Ala Pro Lys Leu Ser Ala Glu Met Tyr Asp Leu
 145 150 155 160

Thr	Ile	Val	Glu	Lys	Asn	Ile	Gln	Asp	Leu	Ser	Val	Asn	Gln	Thr	Arg
				165					170					175	
Phe	Trp	Val	Leu	Gly	Ser	Glu	Asn	Leu	Ala	Ile	Ser	Phe	Pro	Leu	Ser
			180					185					190		
Glu	Lys	Lys	Ile	Thr	Leu	Ala	Ile	Thr	Met	Pro	Ser	Asn	Val	Pro	Gly
		195					200					205			
Ser	Leu	His	Lys	Val	Leu	Ser	Val	Phe	Ser	Trp	Arg	Gly	Ile	Asn	Leu
	210					215					220				
Ser	Lys	Ile	Glu	Ser	Arg	Pro	Leu	Lys	Thr	Lys	Leu	Gly	Glu	Tyr	Phe
225					230					235					240
Phe	Leu	Met	Asp	Leu	Val	Lys	Asp	Gln	Pro	Glu	Lys	Leu	Ile	Glu	Ala
			245						250					255	
Ala	Leu	Thr	Glu	Leu	Glu	Leu	Ile	Gly	Ala	Glu	Ile	Lys	Ile	Leu	Gly
			260					265						270	
Asp	Tyr	Pro	Ile	Tyr	Val	Leu	Ser	Thr	Leu						
		275					280								